PULP & PAPER INDUSTRY

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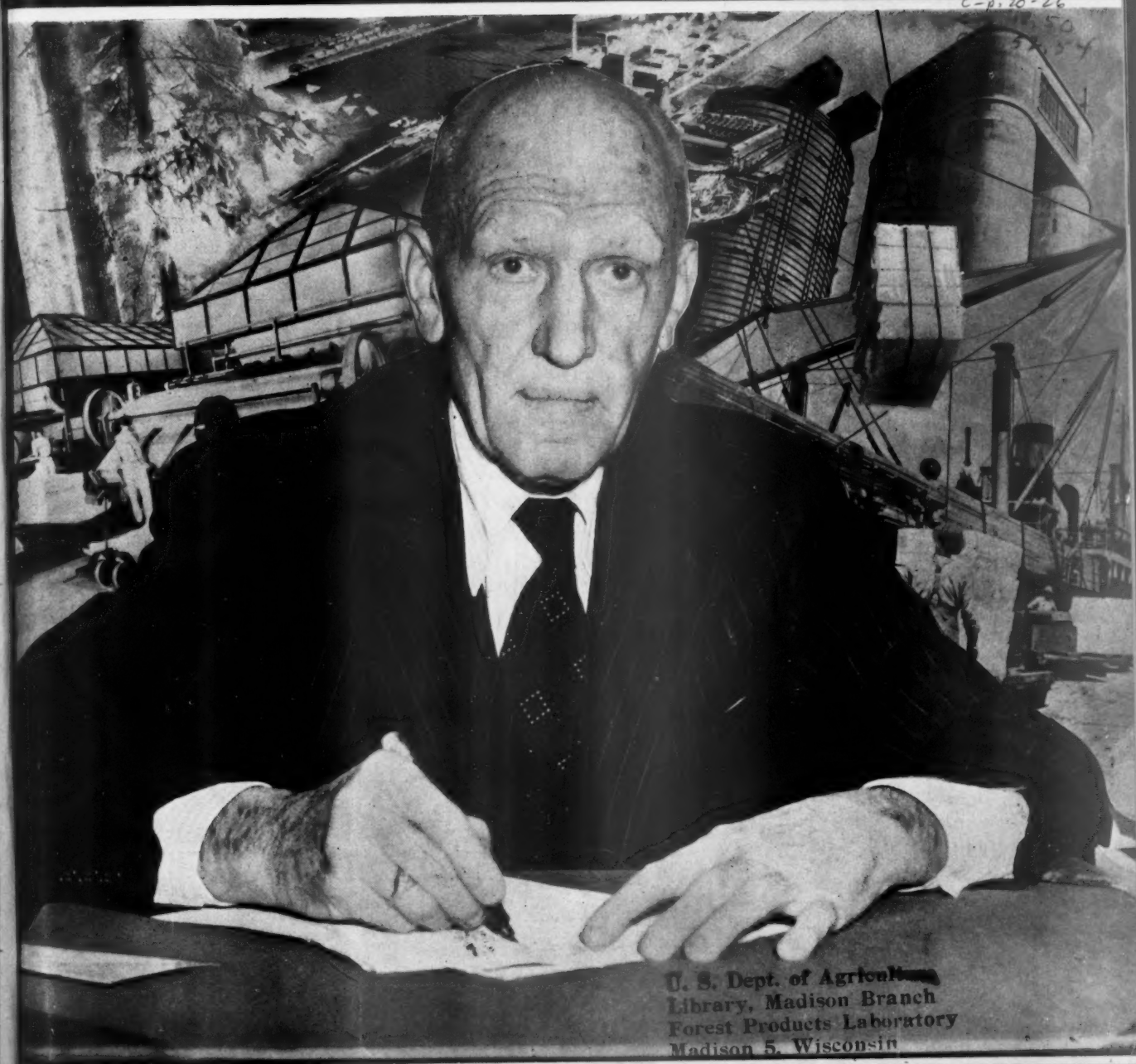

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EDITORIALS

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Population and Paper

GOOD news for the paper industry, as well as for all business, is the word that the statisticians were a long way off in their gloomy predictions about a decreasing or static population in the U. S. They failed to take into account the romances that are a by-product of war, and as a result of these the U. S. population is not only on the increase but will stay on the increase for the remainder of this century.

There were 10,569,000 births since Pearl Harbor was attacked, and despite the death rate we have 13,447,000 more consumers than we had in 1940—and we're still young and growing. The way it looks now to the forecasters, we will have 145,000,000 people by 1950, and 150,000,000 by 1970 and it won't stop there.

U. S. per capita consumption of paper was over 300 lbs. by 1941 and was rising steadily. Do your own multiplying.

Newsprint and Newspapers

FROM the associations and organs of the newspaper industry we have noted much "viewing with alarm" of the vanishing United States newsprint industry and a great deal of agitation in Congress and elsewhere to get more newsprint production.

But nowhere in these "voices" of the newspaper industry have we seen any suggestions that the newspapers themselves might do something on their own part to help make the waning newsprint supply go around.

For instance, is there any excuse for big black banner headlines day after day? Or, for whole pages or major portions of pages being devoted to pictures of movie "starlets" who never had a line in a movie or of some obscure citizen who for a week performed some nonsensical extrovert act?

We know the newspapers may say: That's how we sell papers and that's what our customers want. But the amount of space given to anything in a newspaper is purely a relative matter and, perhaps, this is hardly the right time to stress selling of more copies.

For instance, what justification could there be for publishing the entire serial "story" of General Wainwright in type four or five times normal size? The story, itself, seemed to have enough drama in it without requiring such dramatic presentation.

According to a WPB newsprint task committee, there will be only eight paper companies in the U. S. making newsprint through 1946 and only six in 1947. There were 39 in 1926 and 12 in 1945.

Still, with more Canadian machines starting up, there will be enough newsprint to go around, providing the newspaper are reasonable and do not indulge in extravagant advertising or circulation campaigns.

A Newsprint Cartel?

IN the years when newsprint was down to about one-fourth its present price and when the North American pulp and paper industry was in danger every day of further overseas price slashing that would close their doors and throw thousands of Americans out of work, the newspapers in the United States were silent on that subject.

Perhaps they are paying the penalty today in facing a situation in which they will be dependent almost entirely on foreign suppliers and at a price, eventually, which will be entirely controlled by these foreign suppliers.

To keep the entire world at peace, we are told we must buy, as well as sell, abroad. Some paper industry executives are asking: Isn't newsprint one of the commodities most difficult to produce at a profit in the U. S. and, therefore, better suited for importing?

Bill McNaughton, Whose "Boys" are Now Executives In Many Mills, Wins 1946 TAPPI Gold Medal

Although never yet has a TAPPI Gold Medal award been criticized, the specific contributions which led to the award are often kept in the confidence of the awarding committee. Sometimes it has been for a contribution which has appeared suddenly to the eyes of men, such as a technical book or an invention or method. Probably more often it has been for contributions which stretch over a long period, add up to a very great deal.

Definitely in the latter classification is the 1946 recipient of the greatest single technical award in the industry, William G. McNaughton (*Cover Picture*), engineer for the News Print Service Bureau, New York. It is possible that the tremendous problems faced up to by the newsprint industry today turned the eyes of the awarding committee toward Bill McNaughton. But, no matter what he accomplished in the last year or two, the entire record of his life has been adding up to the TAPPI medal for a long, long time.

For almost a half century he has cast a tall professional shadow in the pulp and paper industry of North America. Mr. McNaughton was born at Hinchenbrooke, Quebec, in 1874 and began his mill career at the Canada Paper Co., at Windsor Mills, Quebec, a year after his graduation from McGill University. Already he had won his first award, the Sir Walter Logan medal in natural sciences, at the age of 27. He would have had it sooner, but he was teaching at Shawville Academy before he tackled McGill.

There are few mills which Bill McNaughton has not seen, and probably none of these are newsprint mills. He has worked in a great many. One year he visited every mill from British Columbia to Newfoundland, across Canada from West to East. It was while he was supervisor of Nekoosa-Edwards Paper Co., at Port Edwards, Wis., that he became one of the founders of TAPPI in 1908, and later, from 1921 to 1927, he was its national secretary. Since 1927, his work has been with the News Print Bureau or associated enterprises.

His "Lab Boys" Everywhere

Today his "laboratory boys" and past associates are scattered over the U. S. and Canada in responsible key positions. At 71 he is to them an honored and much beloved "Mr. Chips," but one who still seems a long way from retirement.

Many a "laboratory boy" under Bill McNaughton was given a chance to work in the mill when a machine tender or a screen man was off or ill. At the annual TAPPI meeting Feb. 28 in the Commodore in New York, these men will rejoice in person to see him receive the Gold Medal. His friendships have extended not only along the roster of mill men but in the halls of science and education where he was close to such men as the late Dr. Harold Hibbert.

Mr. McNaughton joins a distinguished company of Gold Medal winners of the past, including such leaders of the industry as Robert B. Wolf, manager, Pulp Div., Weyerhaeuser Timber Co.; D. Clark Everest, president and general manager, Marathon Corp., and Harry Fletcher, president, Fletcher Paper Co.

Although his experience has stretched over a half century he has held his interest to wood and woodpulp for printing papers. He took part in the Groundwood Research work at Wausau, Wis., on studies which were the foundation of much in the newsprint industry today. There were no artificial stones when this research began, and many a method and piece of equipment in use today were unknown—but the studies remain basic.

From 1917 to 1920, he was vice president and manager of Inland Empire Paper Co., Spokane (Millwood), Wash., and was at Kapuskasing, Ontario, during initial development of the Kimberly-Clark and New York Times-sponsored mill there. From 1933-6, he worked at the Herty Laboratory in Savannah on use of southern pine for newsprint, which led to building of Southland Paper Mills at Lufkin, Texas, the first newsprint mill in the South.

In his more than 45 years in the industry Bill McNaughton has hammered at the keystones of successful newprint business — low cost power, high quality pulp, fast mass production. It was natural that he should eventually go to the News Print Service Bureau as its engineer. It was even more natural that he should receive the TAPPI Gold Medal.

THIS PICTURE OF BILL McNAUGHTON, TAPPI Gold Medal winner of 1946, was taken just a few weeks ago in his New York office by PULP & PAPER INDUSTRY. This and cover picture of this issue, taken at same time, are most recent pictures made of Mr. McNaughton.

McNaughton Anecdotes—Humorous and Serious

There is a rich fund of grand stories about Mr. McNaughton, which his "boys," now executives in various companies, love to recount. There are the usual anecdotes about unexpected explosions of chemicals in the laboratory, probably exaggerated.

One story told is that Mr. McNaughton, when he was chief chemist for Nekoosa-Edwards, invoked a strict rule to bar all visitors and one time he was embarrassed when his young staff strenuously invoked the rule against some unknown visitors who happened to be important company officials.

J. E. Alexander, president of Nekoosa-Edwards, and his veteran assistant, Neil Nash, recall that Mr. McNaughton was once the mayor of Port Edwards, Wis., and proved such a live wire in that job that he was re-elected by a big majority.

A McNaughton hobby they recall was his interest in growing mushrooms and during the years he lived there, he converted a number of the citizens to the culture of this table delicacy.

A. G. "Buff" Natwick, now the assistant resident manager of the big Crown Zellerbach mill at Camas, Wash., was first chemist under Mr. McNaughton at Port Edwards, when that was one of only three first class paper mill laboratories in the country.

Mr. McNaughton spent a lot of time in those days investigating the steaming of groundwood and Mr. Natwick recalls that they hauled wood to the top of the digester with block and tackle—all of the chemists pitching into the laborious job—and steamed the wood for hours in an idle SO_2 separator.

"Bill McNaughton was one of the finest canoeists on the Wisconsin River in those days," said Mr. Natwick, "but he would dare anything in his little Belle-Isle canoe and occasionally took a cold ducking in the river."

"Mr. McNaughton's many years of unselfish service are deservedly rewarded," commented Vance Edwardes, sulfite superintendent of International Paper Co., Palmer, N. Y., and president of TAPPI.

"It is gratifying to note the unanimous expressions of approbation which Mr. McNaughton's election as TAPPI medalist have received," said William R. Barber, a national TAPPI executive committeeman and director of Crown Zellerbach's central technical department.

K-C LAUNCHES NEW SULFATE PULP MILL

Mill investments in this area by seven major companies will total near $80,000,000. LongLac Co. will employ 3,000 men.

Another new sulfate pulp mill will be built in Ontario on the northern shore of Lake Superior—to cost about $15,000,000, including the investment in a townsite for a population of 5,000.

The new mill will be a wholly-owned subsidiary of Kimberly-Clark Corp., and will be known as LongLac Pulp & Paper Co., Ltd.

It will be located near Schreiber, Ont., about 130 miles east of Port Arthur. Winter headquarters already are established at Schreiber. Mill operation is to begin in early 1948.

An additional estimated $10,000,000 will be spent on a power plant on the Aquasabon River by the Ontario government. It is planned that this plant will develop 45,000 hp. and will supply the new pulp mill with 15,000 primary hp. for operation.

Announcements by Cola G. Parker, president of Kimberly-Clark, and by Premier George A. Drew of Ontario, in the past few weeks, have disclosed most of the pertinent facts about the development. Estimates of the monetary investments were made by the premier.

Mr. Parker said initial pulp producing capacity has not yet been fully determined, but presumably the mill will produce somewhere around 250 tons of bleached sulfate pulp daily in order to be an economic operation and this figure would be in line with daily capacities of the other new Ontario kraft pulp mills:

Marathon—300 tons bleached.

Brompton's Red Rock Div.—200 tons unbleached (to be soon increased to 235).

KVP at Espanola—200 tons bleached and semi-bleached.

The Kimberly-Clark mill must have a bleach plant in order to make the kraft pulp suitable for use in Kimberly-Clark's expansion of book paper and creped wadding products. The wood source will be principally spurce, which lends itself to this purpose, even though converted by the sulfate process.

In the past, Kimberly-Clark has been distinguished as outstanding producer of high quality sulfite pulps and it now follows the leader of several other important sulfite producers in turning to the much improved sulfate methods.

Ontario's Premier said the new townsite will include 1,000 houses, schools, a community center and theater. He said:

"The site is at a point between Nipigon Bay and Peninsula Bay in the Thunder Bay district, 130 miles east of Port Arthur. The mill will give employment to about 3,000 men. The site is in one of the undeveloped sections of the rugged Lakehead district. Nearest present rail point is Schreiber, on the Canadian Pacific Railway.

"The company will obtain its pulpwood from and set aside by agreement with the Ontario department of lands and forests. Construction will begin in a few weeks."

$75,000,000 for Mills

The project is the third of its kind on the CPR RR along the Lake Superior north shore.

Brompton Pulp & Paper Co. recently went into production at Red Rock, near Nipigon, with an investment of $8,500,000 (see PULP & PAPER INDUSTRY, Sept. 1945). Marathon's mill at Peninsula, renamed Marathon, and KVP's are due to go into production this summer (Marathon articles in Aug. and Sept. 1945, issues and KVP in July, 1945, issue of PULP & PAPER INDUSTRY). The investment for all four of these mills, also for the K-C creped wadding plant at Kapuskasing, and improvements and expansion being made by Minnesota & Ontario Co., Ontario Paper Co., Provincial Paper Co. and Great Lakes Paper Co., all in this same general area, will probably total about $75-80,000,000, not including the provincial government's investment in the new power plant and transmission line. (All of these mill projects have been fully described and illustrated in recent issues of PULP & PAPER INDUSTRY.)

Just one sour note has been heard since the project was announced, this being a critical blast by the mayor of Port Arthur, apparently unhappy because the power project was being undertaken so far from his city.

Engineering work for the new mill is being carried out at the Neenah, Wis., headquarters of Kimberly-Clark Corp. Decisions on equipment and other details are still to be made.

Why So Much Publicity About Minimum Wages? Let's Talk About High AVERAGE Pay, Say Managers

ERIC JOHNSTON, President, Chamber of Commerce of the U. S.—"Anything which retards output or cuts into quality becomes by definition immoral, anti-social, and untenable."

While unrest and conflict reached a high intensity level in many other fields in the first month of 1946, virtually all of the pulp and paper mills of the United States were peacefully settling their labor problems and not losing a single day of production.

Unfortunately, as substantial increase in wages for pulp and paper employes were becoming effective, the stress in the publicity of these matters seemed to be giving far too much emphasis on "minimum wages" and not enough on "average wages," in the opinion of some industry leaders.

Several executives pointed out to PULP & PAPER INDUSTRY staff editors, making a nationwide survey of these developments, that a very small percentage of employes in mills are on a "minimum" wage.

One company manager said the "minimum" scale applied to only 6% of his mill crews. Other managers placed this bottom pay figure at 8-10%.

Overwhelmingly approved by union vote, a new wage scale for 33 mills in Washington, Oregon and California went into effect Jan. 1, providing a 15% increase for men and 10% for women. Newspaper publicity generally pointed out that this was establishing a new base rate of $1.05 an hour for men, equalling the base rate which logging and lumbering labor had obtained early in December.

Stressing of this comparison, pulp and paper mill executives pointed out, was distorting the actual situation, because there is a much higher percentage of skilled and semi-skilled labor in the pulp and paper mills than in logging-lumbering.

As a matter of fact, the average—not minimum—Pacific Coast wage for pulp and paper mills was boosted from $1.06 an hour to $1.22.

This contrast between minimum and average or maximum rates in the 50-odd mills of Southern U. S. is probably very sharply defined. Yet publicity concerning the new uniform agreement for the 10,000-11,000 employes of the Southern Kraft Division, International Paper Co., announced in December, stressed a base rate of 75 cents an hour.

Actually it is well known in the industry that skilled workers in the Southern mills are comparatively well paid. An approximate 19% increase was announced for the Southern Kraft employes. Most other Southern mills follow the lead of Southern Kraft. Before these increases, machine tenders were paid up to $1.72 an hour, boss mechanics and lead men, $1.38, etc.

Pacific Coast pay increases added $5,000,000 to payrolls. Night shift differentials were increased from 2½ to 4 cents an hour on both shifts. Women were rapidly being replaced in nearly all the mills, although in some cases they remained pending anticipated return of war veterans on leave and drew men's pay if they were on men's jobs. Mills were rapidly getting back to a 40-hour work-week, as the new wage scale was made possible by the rollback.

In the Southern Kraft mills, the change in rate was effective with reduction of work week to 42 hours. An average of eight persons were employed on shifts, where seven had to suffice during the war. Replacement of women in men's jobs ranged from 35% to 90% in Southern mills, depending on rate of return of veterans.

Shift differentials were abolished in these mills, and in their place, the employes now receive 2½ cents plus an increase of 13% in hourly rate.

Southern Kraft negotiates simultaneously with all five unions in their mills once each year on wage and other matters under the chairmanship of Erling Riis.

Wisconsin Agreement

Following the lead of Pacific Coast mills and the Southern Kraft group, another uniform labor agreement program has been inaugurated —this being an agreement among Wisconsin rag paper mills and the unions.

This is the first agreement of its kind in the Midwest and consummates a trend of thinking in that area which was first reported in PULP & PAPER INDUSTRY last November. The movement was stimulated by wage increases in Kalamazoo in October and mill executives in Wisconsin held a meeting in Milwaukee to consider it.

This first agreement in that area embraces just four mills—Fox River Paper Corp., Neenah Paper Co., Gilbert Paper Co. and Whiting-Plover Paper Co., whose operations are similar. Ernest Lambton, regional director of the AFL Paper Makers Union, predicted that ultimately there will be an agreement embracing all mills in Minnesota, Wisconsin and part of Michigan.

The four mills in this agreement granted a 5-8 cent an hour increase retroactive to Oct. 29 based on the 48-hour week.

In the East

A government-sponsored strike vote in the Holyoke group of pulp and paper mills was called off as members of two unions voted to accept a compromise 6-7 cent wage increase after hearing the paper manufacturers' side.

The paper manufacturers were represented by Edward C. Reid of American Writing Paper Corp., E. Clayton Tucker, vice-president of Chemical Paper Mfg. Co. and Crock-

WILLIAM D. STAPLES (left), who this month became assistant to E. W. Tinker, Exec. Sec'y. of American Paper & Pulp Association, New York. Mr. Staples served as Major in Army in staff work abroad for SHEAF. He left WPB in 1943. Through work on legal staff of Paper Division of WPB, he became widely known in the industry. Graduate of U. of Virginia, he was editor of Virginia Law Review, practiced law in Roanoke, Va., and was a book publishers' representative in Europe.

ARTHUR J. C. UNDERHILL (right) Public Relations Director, Rayonier Incorporated, New York, is Chairman of new Sub-Committee on Public Relations for APPA. The sub-committee is now drafting a public relations policy and program for industry members of APPA which will be submitted to national convention at New York in February. Other members of sub-committee, appointed by Mr. Tinker, are: Maxwell D. Bardeen, President, Lee Paper Co.; Gordon Brown, Weyerhaeuser Timber Co.; L. H. Furlong, Minnesota and Ontario Paper Co.; Arnold Hanson, Brown Co.; D. J. Hardenbrook, Vice President, Union Bag & Paper Corp.; Kenneth D. Lozier, St. Regis Paper Co.; Cy Norton, Strathmore Paper Co.; S. O. Stiles, American Canteen Co., New York; and Don Rochester, APPA.

er-McElwain Co., Henry V. Burgee of Parsons Paper Co. and Harold T. Martin, labor advisor to the paper manufacturers.

Considerable improvement as to supply of labor in the past 30 days was reported to PULP & PAPER INDUSTRY by eastern companies. Much improved over previous two months. Not many women are leaving yet in eastern areas, except in Ohio where on Dec. 15 the laws pertaining to minor and female labor were reinstalled due to the end of war emergency.

Tendency in upper New York mills is to cut hours of employment and spread over greater number of employees—getting to the 40-hour week. A handful of strikes are now all settled. At Deferiet a settlement gave a ten-cent increase.

Rural communities, which many pulp and paper mills are located, still suffer somewhat because labor tends as yet to stay around larger centers. However, emigration to small towns is on the increase and this is good for the mills.

More on Southern Labor Situation

The Brunswick Pulp & Paper Co., Brunswick, Ga., has reported 40 of its veteran employes have taken back their jobs and 60 additional returned soldiers have been given employment. The veterans can discuss any point on the globe but are glad to slip back into familiar surroundings.

In Texas, the mills were still advertising for pulpwood cutters during December, faced, as in the southeastern states, by pronouncement that all PW labor in the woods will be removed by May 1. State officials indicated there will be no back-to-work in rural areas until unemployment compensation checks terminte.

One Texas mill reports that 55 of its 200 veterans have returned.

Pacific Northwest Mills Replace Women

At St. Helens Pulp & Paper Co., St. Helens, Ore., as of Jan. 9, only two women remained on men's jobs. Thirty-six veterans have already returned from a total of 116, less five gold stars.

At the Weyerhaeuser Timber Co. pulp mills women have not been displaced completely and it is the presumption they will remain until particular men return from service to specified jobs. Some 22 service men returned at the Longview mill.

At Hawley Pulp & Paper Co., Oregon City, Ore., very few women remain due in part to the return of 65 veterans legally entitled to jobs and the employment of 30 veterans who had not previously worked with this mill.

Some of the Puget Sound mills have released all women; others have kept a few pending return of service men.

WOODROW WILSON—"The business of government is to see that no body or group of men may come into competition with the authority of society."

Lt. Comdr. A. B. LAYTON, USNR, back at desk at San Francisco headquarters of the Crown Zellerbach Corp., as Vice President with duties having to do with operations, sales and financial matters. Mr. Layton was connected with Naval Ordnance, and was Executive Officer at the great Port Chicago ammunition loading depot of the Navy on San Francisco Bay. He was in the service three and a half years, being mustered out last September.

Shelton Reopening Improves Rayonier Position

The recent reopening of the Shelton, Wash., division of Rayonier Incorporated places that company "in a better position to meet the requirements of customers," Edward Bartsch, president, announced in a report to stockholders for the six months period ending Oct. 31.

"The operating costs incurred in connection with the current reopening of our Shelton mill, amounting to approximately $300,000, have been absorbed in the operations for the period," he said.

Production for the six months was 127,910 tons for the three other Rayonier mills, which was 5,280 tons under the corresponding 1944 period. Consolidated net profit for Rayonier and its subsidiary, Georgia Timber Co., was $758,785 compared with $961,085, adjusted figure for 1944, reflecting change in provision for federal taxes.

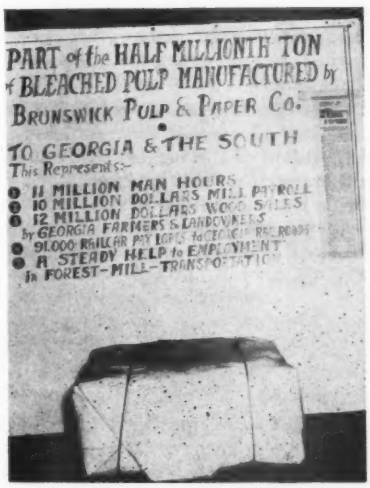
The Shelton mill, when up to capacity, normaly produces about 200 tons of bleached sulphite pulp.

SENATOR VANDENBERG—"Men of good will in labor and management must resolve their differences for their own and the common welfare's sake."

Effective Public Relations In Georgia Mill Town

Effective promotion of institutional good will was realized by the Brunswick Pulp & Paper Co., Brunswick, Ga., in local publication of how much money the paper mill had caused to be distributed in the local territory.

THIS EXHIBIT in Brunswick, Ga., bank tells what Brunswick Paper Co. does for community and that part of Georgia. Photo by PULP & PAPER INDUSTRY.


PART of the HALF MILLIONTH TON
of BLEACHED PULP MANUFACTURED by
BRUNSWICK PULP & PAPER CO.
TO GEORGIA & THE SOUTH
This Represents:-
11 MILLION MAN HOURS
10 MILLION DOLLARS MILL PAYROLL
12 MILLION DOLLARS WOOD SALES
by GEORGIA FARMERS & LANDOWNERS
91,000 RAILCAR PAY LOADS to CENTRAL RAILROADS
A STEADY HELP to EMPLOYMENT
in FOREST-MILL-TRANSPORTATION

Coincident with the appearance in the Brunswick News of a story announcing the production of the half-millionth ton of pulp, the company placed on exhibit in the local bank a package containing some pulp from that unit.

Both the newspaper story and exhibit resulted in creating a favorable attitude toward the company's enterprise.

In the accompanying photograph, the sign with the exhibits records that in order to manufacture a half million tons of pulp, the Brunswick mill created 11 million man-hours of work, paid out 10 million dollars in mill payroll alone, and Georgia farmers, landowners and wood producers came in for a 12-million dollar share by furnishing the pulpwood used. Railroads received revenue on 91,000 rail cars used to haul pulpwood into the mill and pulp out to the market. It would have taken one continuous train reaching from Brunswick to Philadelphia to handle this cargo.

REPORT ON BRYANT PAPER CO. EXPANSION

PULP & PAPER INDUSTRY presents on these pages the first comprehensive article summing up the developments in the modernization and expansion program at Bryant Paper Co. and its significance to the entire industry.

Ten months have passed since the 50 year old Bryant Paper Company, one of the oldest mills in the great Kalamazoo Valley, paper center of Michigan, became a property of TIME, Inc., giant of the magazine publishing industry.

In that comparatively short period, a great many changes have taken place out Alcott Street way, in the southern outskirts of Kalamazoo. Two independent projects are already well along:

1. The modernization of the Bryant mill itself. This includes the construction—already under way—of a new coating plant of 113,000 sq. ft. of floor space, the complete rebuilding of the central power plant, which will substantially increase the steam and electrical generating capacity, and the rebuilding and complete modernization of several of the company's paper machines. This program will be completed about Jan. 1, 1947.

2. Construction of the Graphic Arts research laboratory, a two-story, 125 x 61 ft. building, where research in printing papers, inks, resins, dyes, pigments, photography, art work, electrical devices, plates and presses will be combined and correlated under a single roof for the first time. It will be three-fourths completed about Feb. 15.

PAUL THUMA (left) and D. ROBERT ERICKSON, Research Consultants for Time, Inc., at Kalamazoo, Mich., in picture taken by PULP & PAPER INDUSTRY at their temporary quarters at the Bryant Mill.

They will carry on their work at the new Graphic Arts laboratory of which Mr. Erickson is to be Director. He and Mr. Thuma previously were associated in the Michigan Research laboratories and E. J. Kelly Ink Co., in Kalamazoo, which was sold to General Printing Ink Corp.

These are busy days, indeed, at Bryant. A great many pulp and paper industry executives were "scratching their heads" when they heard that Time, Inc., which publishes Time, Life, Fortune, and Architecural Forum, and is reported considering an addition to this family of magazines soon, had taken over Bryant.

This mill was not too long ago regarded as the world's largest book paper mill, more recently, however, it had one of its seven machines down and others working short hours due to the lack of pulp and manpower and it is a mill which was dependent entirely upon outside sources for its raw materials. Several of the seven machines were slow and in need of overhauling and their rated capacities, with a range from 112 to 152 inch trim, totaled a little over 200 tons per day. The coating plant, the Imperial Division, when in full operation before the war produced 100 tons of coated paper a day.

But for the $2,300,000 in cash which changed hands, with another $1,000,000 bank balance being divided by the old stockholders—Time, Inc., obtained more than just machines, stone and brick walls. They bought a "know-how" in the coated paper field, which was respected throughout the pulp and paper industry, as much laboratory work was done at Bryant on coating processes.

There is no reason why the batteries of coaters that include some new type equipment which will be operating at Bryant, could not process paper stock from other mills owned by or under contract with Time, Inc.

This big magazine publisher is drawing its supplies from at least a half-dozen of the biggest paper producers in the country, and it now owns two other mills besides Bryant—the Maine Seaboard Paper Co. of Bucksport, Maine, and the Hennepin Paper Co. of Minnesota—and its diversified paper supply includes every kind, groundwood, sulphate and sulphite, as well as paper with a percentage of converted paper stock.

A member of an old Kalamazoo Valley family, Allan B. Milham, quiet, capable, with a sure knowledge of Bryant's every potentiality,

N. L. "NICK" WALLACE, hustling Vice President and Production Manager for Time-Life-Fortune, whose assignment—a rugged one—is to produce about 250,000 tons of coated paper for skyrocketing circulations in 1946. Here he was snapped by PULP & PAPER INDUSTRY camera outside his office at Bryant Paper Co., where he is Vice President. But any day he might be at Maine Seaboard, out in newly-engaged supply mills for his magazines in Minnesota—Hennepin and Watab—or consulting in California with Crown Zellerbach officials; in Wisconsin with Consolidated; in New York with St. Regis or with other papermakers.

is carrying on as president of Bryant. Spending a lot of time with him in an adjoining office when he is at the mill is N. L. "Nick" Wallace, who is vice president of the new organization. Mr. Wallace, who is also vice president of Time, Inc., Delaware, and production manager of Time, Inc., working under vice president and treasurer, Charles L. Stillman, has duties that take him from coast to coast in the intensive drive being conducted to build up a quarter of a million tons or an adequate paper supply for their publications.

But if Mr. Wallace is at Rockefeller Center, out west in "huddles" with the new Pacific Coast supplier, Crown Zellerbach Corp., or with Consolidated executives in Wisconsin, or the new Time acquisitions in Maine or Minnesota, some of his young aides in the Time organization are on hand at Bryant, working as a keen, alert team with Mr. Milham and his experienced consultants and aides.

Modernization of Mill

Here is a brief summary of the operations modernization program at Bryant:

The new coating plant, illustrated in a drawing with this article, is being carried forward rapidly at a

TIME, INC., PROGRAM PROGRESSES RAPIDLY

location south of the Imperial division of Bryant and should be completed next summer. It will cover an area of 202 x 534 ft. and be of modern construction with fluorescent lighting, fire proof corrugated asbestos-protected metal facing, a steel roof, with tar-gravel insulation.

Replacement of antiquated power equipment and expansion of power potentialities has been under way since November. All of this equipment has been ordered. This includes five large motors from Electric Machinery Mfg. Co., Minneapolis. General Electric Co. is supplying a turbo generator and switch gear. A Riley boiler and Cochrane feed water system also are being installed.

Beloit Iron Works at Beloit, Wis., is doing a considerable part of the work on paper machines, according to the plans drawn up by Bryant engineers. No work has as yet been done on old machines.

Graphic Arts Laboratory

A novel and important enterprise at Kalamazoo is the rapidly shaping-up Graphic Arts research laboratory. This project is closely integrated with future needs of the Bryant mill, as well as the entire Time organization and its far-flung resources for paper production.

This project is of interest and importance to the pulp and paper industry in general, because what is learned here in the technique of printing on paper will influence trends in the entire industry throughout the country. It will definitely be of benefit to the entire industry, Time executives told PULP & PAPER INDUSTRY. Built by the new Bryant organization and Time, Inc., this research laboratory will be operated by D. Robert Erickson, who will be its chemical research director, and by Paul J. Thoma, who will direct development work on coating and printing methods. Mr. Erickson and Mr. Thoma were previously owners and directors of the Michigan Research Laboratories. Mr. Erickson directed research for Michigan Research, and Mr. Thomas was manager and vice president of the E. J. Kelly Ink Co., printing ink manufacturers. Both companies were sold ten months ago to General Printing Ink of New York, now a division of the Sun Chemical Co.

With all of these men working together, inhibitions go by the boards and age-old systems of papermaking, coating, and printing of papers are going to be in constant danger of revolutionary upheavals. Anyone who knows this Bryant-Time-Graphic Arts research laboratory team, knows enough not to be too suprised if almost anything happens to modernize the papermaking and publishing technique. An entirely new method of coating is just one of the possibilities.

Pigment, resin and solvent companies—the printers and papermakers and the ink producers are all invited to cooperate in the work that will be done in this unique laboratory. One and all will be given every opportunity to share in the developments, PULP & PAPER INDUSTRY was told.

They herald a new future day when the printer or the ink maker will no longer be able to "pass the buck" and blame the paper mill for a faulty job—or vice versa.

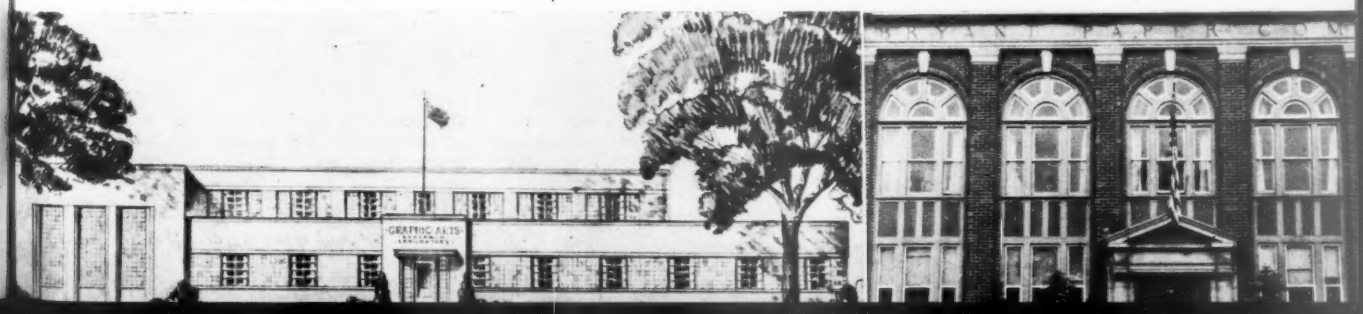
"Paper will be created as an essential part of a finished product, produced by the combined efforts of all of these manufacturers or technicians," explained Mr. Erickson. "They will all work for a final quality end product. Paper will be made for the coatings; the coatings will be made to react with the inks that are put on them; inks will be made to react with the coatings; inks will be made to hang on to the plates; new presses will be built to do a better job with inks—all down the line there will be produced new papers, new coatings, new inks, new presses that combine in the improvement of publishing."

How big a step forward this will be, can best be realized when one considers that up to now paper companies have not been "ink-minded" —nor have ink-makers been concerned much about the problems of paper making. Not the "eye appeal" of the paper will alone count. How it works out in conjunction with all other elements of publishing is the main objective. Instead of working against each other as they did so often in the past, these elements will work together.

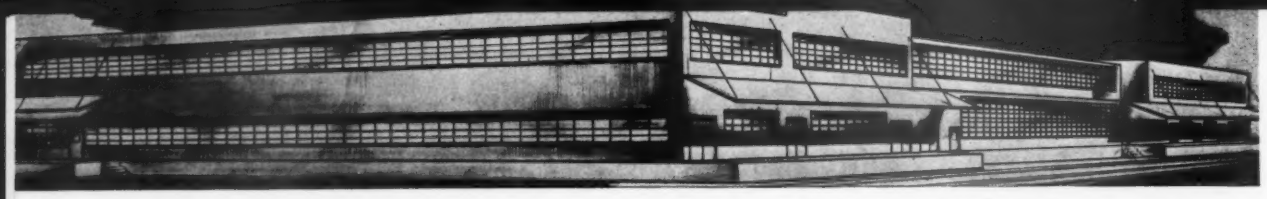
The laboratory consisting of two floors, will have a total space on both floors together of 10,350 sq. ft. The personnel will not be large—it may total finally about twelve persons on a permanent staff, but other technicians may work there

ALLAN B. MILHAM (left), President of Bryant Paper Co., with BUTLER COX, of Fine Papers Co., Rochester, N. Y., at Bryant's office entrance in Kalamazoo. Photo by PULP & PAPER INDUSTRY.

Mr. Cox was one of a number of Bryant's customers who called or made inquiries after Time, Inc., bought the mill. These old customers found that Time had generously agreed to permit them a continuing supply of paper from Bryant—50% of previous allotments for a 6 months period ending next April and limited amounts even after that date.



Below: Artist's drawing of new Graphic Arts laboratory at Bryant Paper Co., Kalamazoo (on left), and facade of the company's main office building.



DESIGN OF NEW COATING PLANT at Bryant Paper Co., now under construction. Its dimensions are 202x534 ft. It will be devoted to large scale production of coated papers for Time, Inc., and will balance up the Bryant operations.

temporarily on particular projects.

The building is of light brick except for the glass blocks and thermopane windows. All lab benches and working surfaces are being made of Tufflex (tempered) glass. There will be radiant heat throughout; conducted through the floors.

The first floor will consist of a lobby, five offices, a general 30 x 20 ft. laboratory, a paper laboratory, an ink laboratory, a dispersions laboratory, a press laboratory, an instrument room, dark room for developing photo micrographs, machine shop, resin room, dye stuffs and pigment room, chemical storage room and wash room. In the basement provision will be made for barrel storage. There will be pilot plants for the manufacture of new dyes, pigments and resins.

The dispersions laboratory will be used for dispersing pigments, dyes, etc. and in different vehicles for coatings, inks, etc.

In the paper lab will be a continuous web paper machines, a beater and other equipment. Every type of available or possible fiber for use in papermaking will be given trials.

The press lab is to be the largest, occupying all of one side of the building. There will be a high-speed 1500 ft. per minute rotary printing press, very likely in two units and in two colors, each of which can be printed on each side. There will be proof presses, small size letter presses, as well as aniline, gravure, wet offset and dry offset presses.

On the smaller second floor, there will be a conference room, an electrical laboratory, and two more offices.

Time, Inc., is building another laboratory in Stamford, Conn., for mechanical research. The two laboratories—at Kalamazoo and Stamford—will conbine to give Time, Inc., integrated facilities for experiments on all aspects of production from tree to magazine.

Top Officials

There are six directors of the new Bryant Paper Co., three are from Time, Inc., namely Mr. Stillman, Mr. Wallace and Mr. D. W. Brumbaugh. The others are Gurden Wattles, of White Weld & Co., and Mr. Milham and Peter H. Gideon of Bryant. Mr. Gideon was secretary and treasurer of the company for many years and continues in that office.

Mr. Stillman is chairman of Bryant's board of directors, and as previously mentioned, Mr. Milham is president and Mr. Wallace, vice president. Within the last two months, L. L. "Pete" Callaway, Jr., a former executive of Time, Inc., and recently associated with the War Production Board, was appointed vice president in charge of sales. Mr. Callaway, a young man who has demonstrated executive ability, hails from the state of Montana.

At the last directors' meeting, Merton S. Fogerty, superintendent of power and maintenance at Bryant, was elected vice president in charge of engineering.

The Bryant mill was built in 1895 by an English immigrant, Noah Bryant, and his son-in-law, Frank H. Milham. It took just $125,000 to build a one-machine mill in those days! Mr. Bryant was a pioneer in the paper industry in the Kalamazoo Valley and was the first superintendent of the Bardeen Paper Co. of Otsego, Mich. He headed Bryant until 1907, when his son-in-law, Frank H. Milham, uncle of Allan, became president.

There seems no "rhyme or reason" or at least not any of the usual reasons—for a great paper industry right in the Kalamazoo Valley. Yet here is one of the most densely paper mill "populated" areas in the North American continent. It was not pulpwood that brought them here, for that part of Michigan had been pretty well denuded of forests fifty years ago. It wasn't water or raw materials, although proximity to the great printing paper market of Chicago was undoubtedly a factor.

But the real reason why Kalamazoo is the element of a great paper industry is simply the human element involved—the men like Bryant and the Milhams, including some others of blood kinship, who just chose to build their mills in this valley, mostly because they liked it.

British Parliament Debates Clay Exports to U. S. Paper Mills

The rapid expansion of coating and magazine paper production in the United States has opened up a new rich market for clays, which come principally from Georgia and England.

A recent debate in the British Parliament revealed that Britain has $1,250,000 worth of orders of clay for export to the United States.

Considerable agitation developed in the Commons over the critical labor shortage in Cornwall, England, which one member said threatened the loss of these lucrative orders.

According to the official Parliamentary report obtained by PULP & PAPER INDUSTRY, Sir Stafford Cripps, the president of the Board of Trade in the Socialist Government, was asked about the situation during the "question period"—which is a feature of the Parliamentary procedure at which time any of the ministers can be questioned on any and all matters.

Sir Stafford was asked whether he was aware that the china clay industry has over £250,000 worth of orders for export trade to America which they are unable to execute owing to the direction of labor away from the industry; that the livelihoods of many Cornish people depend upon this industry; and how many officials of his department have any knowledge of, or experience in, the china clay trade.

In reply, Sir Stafford said: "We have taken special steps, with the help of the Ministry of Labor, to assist this industry. The labor force has been increased by 750 workers during the last 16 months and exports to the U.S.A. are now at the rate, of 98,000 tons per annum against 62,000 last year. For over three years my department has had the most valuable advice of Prof. W. R. Jones, of the Royal School of Mines, who is an expert on china clay, and at one time managed china clay works."

Questioner "Is the minister aware that the industry is still desperately short of labor, and having regard to his well-known concern about the export trade, can he take any further steps to see that £250,000 worth of orders are not thrown away?"

Sir Stafford: "Certainly, we are taking every step possible."

JACK MAZER, Treasurer, Hudson Pulp & Paper Co., who acted for his company at Palatka, Florida, in starting ball rolling for its new "Southern Division."

THESE PICTURES WERE TAKEN DEC. 5 BY PULP & PAPER INDUSTRY at the site of the new Hudson Pulp and Paper Co.'s Southern Division, at Palatka, Fla.
Views on left (top to bottom) are Rice Creek, which bounds the mill site; piles of lumber and a building going up in background, and the ground prepared for building.
At right, driving piling. Ed Haglund, general foreman for Merritt, Chapman & Scott, New York (17 Battery Place) contractors. He has been with this company for 26 years.

HUDSON PULP & PAPER CO. BUILDS NEW MILL IN FLORIDA

Ground is broken at Palatka, within 25 miles of rapid growing forest area. Sulphate mill (150 tons) will employ 450 persons.

Ground was broken at Palatka, Florida, on Dec. 1 for the new 150-ton per day sulphate pulp-paper mill of the Hudson Pulp & Paper Co., culminating a decade's effort of community leaders to interest the industry in the location. For Hudson, which will operate the mill through a "Southern Division," it marks their first projection into the southern pine species field.

Jacob ("Jack") Mazer, treasurer of the Hudson company, has represented the company at Palatka. The principal company office is located at 220 East 42nd St., New York City.

Palatka is in the northeast part of Florida, about 50 miles south of Jacksonville and about half that distance inland from the Atlantic Ocean.

The mill will cost in the neighborhood of $6,000,000 and it will have a new 232-inch fourdrinier machine. J. E. Sirrine & Co., of Greenville, S. C., are engineers with John Bringhurst, Jr., as resident engineer.

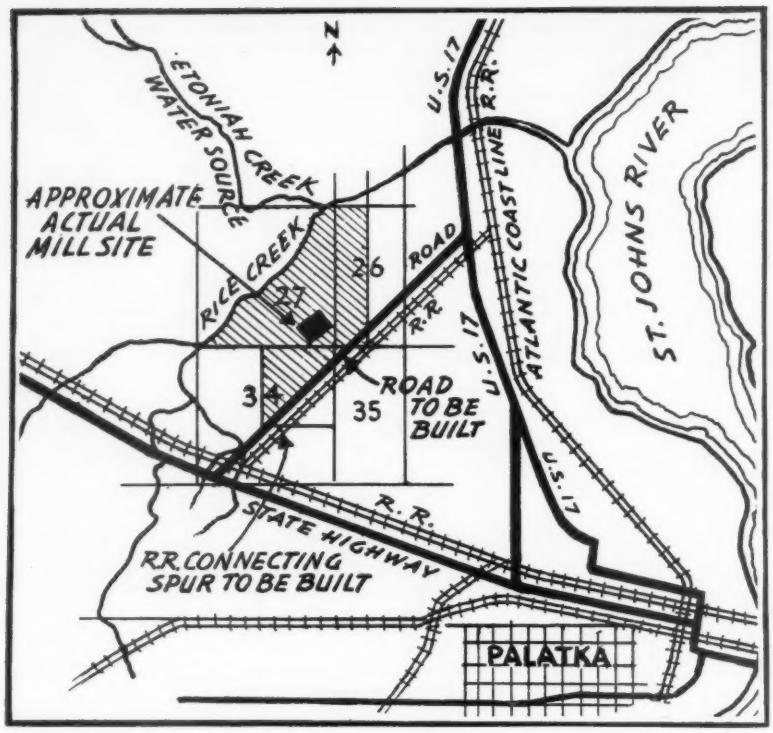
The general construction contract is held by Merritt, Chapman and Scott, 17 Battery Place, New York City, with W. J. Eller as project engineer and P. L. Emrich as general superintendent. The contractors have built a number of paper mills, including the newsprint mill of Southland Paper Mills at Lufkin, Texas.

J. W. Campbell, former mayor of Palatka and a large timber land owner, active over a period of years in seeking a mill, has cooperated with the Hudson executives.

Timber Resources

Figures drawn from U. S. Forest Service sources show that within 25 miles of Palatka there are 750,000 acres of forest land bearing an estimated 780,000 units of pulpwood. Within a radius of 50 miles there are 2½ million acres of forest land bearing an estimated 2,100,000 units of pulpwood. These figures are "non-competitive," i. e., they exclude lands within the area con-

LEMON STREET, the main business street in Palatka, Fla. A year hence, new Hudson Pulp & Paper Co. mill two miles from here, will give jobs to 450. Palatka is pleasant town with present population of 8,000.



SITE OF NEW SOUTHERN DIVISION OF HUDSON PULP & PAPER CO. The mill will be 2.1 miles from the town of Palatka. It is in Northeast Florida. Section numbers of the area are shown. The site is northwest of the road to be built connecting State Highway 28 and U. S. 17. Water source is on Etonian Creek.

P. S. EMRICH, Superintendent for Merritt, Chapman & Scott, at the site of construction for the new Hudson Paper & Pulp mill at Palatka, Florida.

trolled by other paper companies. These figures are for pine.

The area lies within the section of Florida noted for rapid forest growth.

Description of Site

Business men of Palatka raised $25,000, with George Hall, local capitalist, as trustee, and purchased a 500-acre site for the mill. This site is excellently situated between Florida State Highway 28 and U. S. 17, and is to be served by a connecting road on which the mill is being built.

On the opposite side of the tract is Rice Creek, a stream of ample width and with depths up to 40 feet. A canal will be dug into the mill site making it a waterside location for handling pulpwood and products of the plant. Rice Creek connects with the St. Johns River at a distance of about two miles away.

The site is also flanked by railroad facilities.

Etoniah Creek, which branches from Rice Creek at the edge of the mill site, furnishes an ample supply of fresh soft water. A five year record shows it has a flow of 50 million gallons per day.

With all conditions favorable, the mill could be completed in eleven months.

The mill will employ about 450 persons. The site is 2.1 miles from the city limits and 3.8 miles from the courthouse.

Palatka is a pleasant Florida community of 8,000 population. It was founded as a trading point on the St. Johns River in the early days when water transportation predominated. The area abounds in fresh water lakes and streams in which fishing is excellent. Hunting is good in not too distant sections. Palatka is located on the principal route to and from citrus fruit area of central Florida.

Appeal Made to Pacific Coast Paper Firms

Pacific Coast firms interested in export trade in the Philippines are asked to communicate with the U. S. Army.

Responses should be addressed to Capt. B. L. Airhart 0390985 USA Service Co., 785 Tank Bn., APO 75, care Postmaster, San Francisco.

The appeal from Capt. Airhart did not specify any special paper grades desired. By radiogram, he asked for "names and addresses of firms on Pacific Coast interested in export paper trade at Manila, P. I."

Florida Pulp & Paper Co. Operates War Plant

J. H. Allen, president of Florida Pulp and Paper Co., has announced that his company is operating the U. S. Defense Plant Corporation's board-producing plant at Cantonment, near Pensacola, Fla. The plant was built during the war at a cost of $1,202,300 and was operated during the war for production of paperboard for ammunition, food and other containers.

Technically, during the war, it was under lease to the Santa Rosa Pulp and Paper Co., affiliated with the Florida company. Now, under a new lease to the local company, it is operating for civilian products, including a high grade pure board, bleached or unbleached, used principally for milk and frozen food containers.

Local interests, under the new lease, are authorized to meet any price offered for the plant by any other interests. Thus, Mr. Allen explained, if anyone else acquired it from the government, it would probably be operated from here. The plant has been offered for sale or lease by the RFC.

Another Port Angeles News Machine Starts Up, Providing Jobs for Vets

A third newsprint machine has started up "on slow bell" at Washington Pulp & Paper Corp., Port Angeles, Wash., division of Crown Zellerbach Corp. This is one of the smaller machines at this mill, No. 1, with 152-inch trim, and is being run only slowly because of the limited log supply at present.

The machine started up Dec. 11 after being shut down for more than three years. Since Sept. 21, 1942, only the No. 2—152-inch trim, and No. 3—222-inch trim machines have been operating.

The sulfite mill at Washington Pulp went down Oct. 5, 1942, and resumed operations only about six months ago and is making sulfite pulp only in sufficient quantity for the news machines.

With the third machine in operation, jobs were created for about an additional 40 men, bringing the mill's rolls up to about 360. A large number of the new employes are discharged service men. Raymond Dupuis, manager, says so far practically 100% of men on military leave from this mill are returning to their old jobs.

The No. 1 machine is one of the most versatile in the industry and is an original Bagley & Sewall with a number of improvements made to it some years ago, including addition of Downington suction press and rolls.

William Edwards is paper mill superintendent at the Port Angeles mill. L. L. Dupuis, father of the manager, recently retired from his position as general superintendent.

In these days when the paper industry is finding rising costs of wood and labor making it more difficult than ever to carry on production in low-priced categories such as newsprint, the mill at Port Angeles is one of the very few in the United States which is reasonably suited to this field, with nearness to wood supply as an important favorable factor. However, until labor in the woods can be increased it operates under difficulty.

Harold Smith Leaves Newsprint Association

Early this month Harold Smith confirmed to PULP & PAPER INDUSTRY in New York City his resignation as president of the U. S. Newsprint Manufacturers Association.

Although Mr. Smith, president of The Wright Company, Inc., 444 Madison, New York, declined to confirm any reasons for his resignation at the time of going to press, he did indicate that a formal explanatory announcement would be made later in January.

Logical conjecture is that the resignation is due to Mr. Smith transferring his business activities from U. S. newsprint to Canadian interests.

The Wright Co., Inc., was long a selling agent for Maine Seaboard Paper Co., Bucksport, Me., and Mr. Smith has been president of both companies whose interests interlocked. When Time, Inc., bought Maine Seaboard it had no need of the selling unit, and usually well informed sources indicate that Mr. Smith has purchased back The Wright Co. with its contracts.

In the cards now, these sources say, is The Wright Co. taking over the sales of St. Lawrence Paper Co. of Canada and the elimination of the St. Lawrence Sales Corp., New York, which has represented them heretofore.

Pacific Paperboard Changes

Personnel changes at Pacific Paperboard Co., Longview, Wash., include advancement of Lloyd E. Utter to vice-president in charge of sales, with offices in San Francisco, Calif., and Olfel Olsen, former director of business control for the state of Washington, as vice-president and manager of Pacific Paper Sales Co., Portland, Ore.

Pictures taken last month of the Port Angeles newsprint mill of Crown Zellerbach Corp., and Resident Manager RAYMOND A. DUPUIS.

No More Rooms! Says Waldorf-Astoria

The Waldorf-Astoria in New York —traditional meeting place of the American Paper & Pulp Association for "Paper Week"—says it has no more sleeping rooms available for the convention period, scheduled for Feb. 24-28.

It looks like those who want to attend and already have no arrangement, will have to find other hotels.

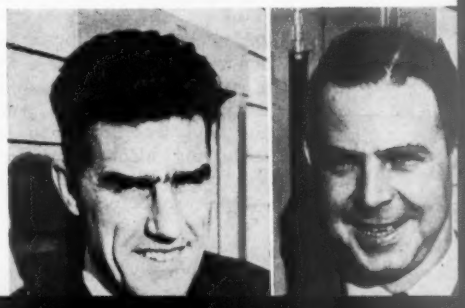
Fred Gotzeman Holds Thilmany Record

The real veteran at Thilmany Pulp & Paper Co., Kaukauna, Wis.—even exceeding by a couple of years the long-year record of Art Schmalz—is Fred Gotzeman, who is boss on the old No. 1 machine. Mr. Gotzeman has been at Thilmany for 42 years.

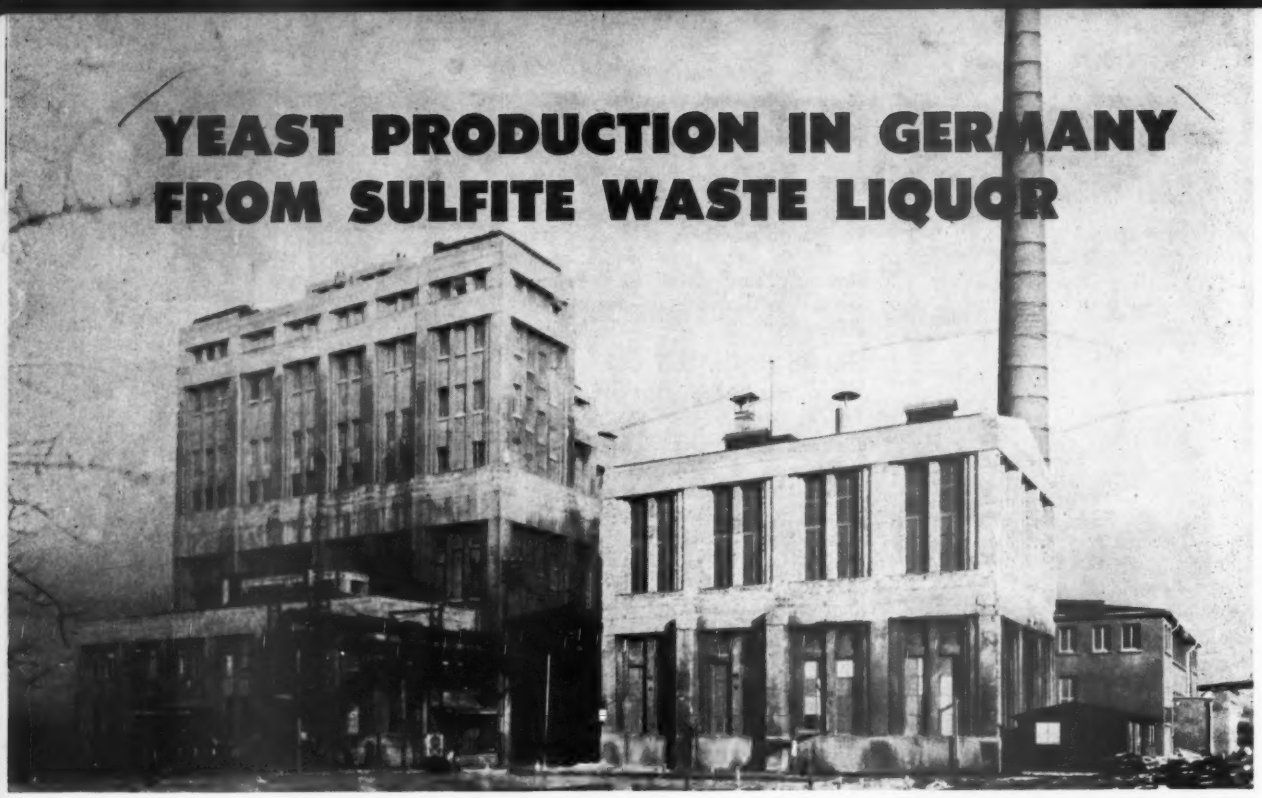
THOMAS B. HARGREAVES (left), who was promoted to Assistant Resident Manager, Port Angeles, Wash., Div., Crown Zellerbach Corp., in September. He advanced from Maintenance Engineer and Chief Electrician. Born in Wimbledon, England, he lived in Canada 9 yrs., came to U. S. in 1919 and has been at Port Angeles mill since 1921, coming first as Fuel Man. Les Warwick, Asst. Maintenance Engineer, was promoted to Plant Engineer.

MERRILL CASHMAN (right) in his first "civvies" picture since resuming duties as Personnel and Safety Supervisor of the Crown Z mill at Port Angeles on Nov. 1. James Phillips carries on as his assistant. Mr. Cashman served three years in Coast Guard, going in as 1st Cl. PO and coming out as Senior Lieut. Service took him to Florida, California and finally on tour on a tug of New Guinea, Palau, Leyte and Luzon.

Mr. Cashman is putting into practical operation some ideas he developed during service of finding paper mill jobs for disabled veterans. At Port Angeles, a young man whose back was broken in combat in France, is working as paper tester; another handicapped slightly in use of hands as result of wounds is on rewinder. Many vets are employed at this mill or are returning there.



YEAST PRODUCTION IN GERMANY FROM SULFITE WASTE LIQUOR



YEAST AND ALCOHOL PLANT of the sulfite pulp mill of Zeelstofffabrik Waldhof, on the outskirts of Mannheim on the Rhine River.

By Dr. Edward G. Locke

Member of Joint Intelligence Objectives Agency (organized by Allied Joint Chiefs of Staff) and permanently on staff of Pacific Northwest Forest and Range Experiment Station, U. S. Forest Service, Portland, Ore.

Three processes are used for the production of wood sugars in Germany: the Scholler process, the Bergius process, and the sulfite pulping process.

Three Scholler type plants located at Tornesch, Holzminden and Dessau produce wood sugar by the use of an 0.8% sulphuric acid solution. This wood sugar then is converted to approximately two and one-half million gallons of alcohol and two thousand metric tons of dry yeast per year.

The Bergius process, using 50% hydrochloric acid, is employed by two plants, one at Regensburg and the other at Mannheim-Rheinau. No alcohol is produced at these plants but in 1944 about 7,000 tons of dry yeast were produced along with some crystalline glucose and furfural.

In general, the sulfite pulp mills of Germany which cooked spruce produced alcohol from the waste liquor, the production of which amounted to six and one-half million gallons a year. On the other hand, when beech was processed for dissolving pulp, the waste liquor contained higher quantities of pentose sugars and was found to be less suitable for alcohol production. As a result six sulfite mills in 1944 were producing yeast on the waste liquors. The installed capacity of these six plants was about 14,000 metric tons per year. The end of the war stopped the construction of a seventh plant with a capacity of 1,800 tons a year at Weisenbach to produce yeast from spruce waste liquor.

Two other pulp mills were using a portion of the waste liquor to produce *Oidium lactis* by the "Biosyn" process for a food material. Its production amounted to only about two tons a day of dry material and it was not accepted by the Wehrmacht.

The Phrix Company had developed a pre-hydrolysis pulping process using dilute sulfuric acid suitable for both straw and wood which would remove the hemicellulose in this step. This preliminary treatment was to be followed by a kraft cook to produce a high alpha pulp. The high pentose wood sugar obtained from the pre-hydrolysis was to be used for the production of yeast. The Phrix Company had worked out a very ambitious process and their program had the approval and support of the Reich.

Several individuals connected with other German pulp companies were rather critical of this process and its promoters, possibly because of the difficulties these other companies had in obtaining approval from the proper German ministry to expand production while the Phrix Company was able to go ahead and start construction of two new plants. The plant at Wittemberg was completed in 1945 to use straw as its raw material, and was expected to produce 20,000 tons of dry yeast per year. The other plant at Kustrin on the Oder was designed to use pine and fir and was to produce 12,000 tons of yeast per year. Neither of these plants operated. Products made by the Phrix process in small equipment were excellent and possessed a very fine flavor.

The spent beers from the alcoholic fermentation of sulfite waste liquor at Attisholz, Switzerland, were utilized to produce yeast. Also the Dessau and Ems, Switzerland, Scholler plants grew yeast on the spent beers. An interesting feature of these fermentations was that not only was the yeast able to utilize the residual pentoses but also certain other organic materials including organic acids.

DR. EDWARD G. LOCKE, of Pacific Northwest Forest & Range Experiment Station, Room 424, U. S. Courthouse, Portland, Ore., the author of this article.

Here's First Complete Description Of German Process Heralded by FEA

Ed. Note—PULP & PAPER INDUSTRY presents on these pages the first complete description of the process developed in Germany for manufacture of a supplementary food yeast from sulfite waste liquor.

Interest in this standardized German process has been indicated in all regions of the North American sulfite industry, from the Atlantic to the Pacific Coast.

There is believed to be a market and a need for a supplemental protein food for cattle and poultry, especially in regions where farmers import feed, which pulp and papr mills could supply. Of course, the big economic question mark is: How much are American and Canadian farmers willing to pay for this product?

Meanwhile, intensive studies and laboratory work have been carried on in production of food yeast from sulfite liquor at the Institute of Paper Chemistry, Appleton, Wis., financed by the Wisconsin pulp and paper industry, and by the Pulp Division of Weyerhaeuser Timber Co., at Longview, Wash. Production by the Scholler (wood sugar) process also has been studied by the U. S. Forest Products Laboratory, Madison, Wis.

A statement from the Foreign Economic Administration in Washington, D. C., published in PULP & PAPER INDUSTRY last August, said that American experts who "invaded" Germany after V-E Day had discovered a superior technique in the fermenting of this food yeast.

One of these "experts" was Dr. Edward G. Locke, the author of this article, who was a member of the Forest Products Sub-Committee of the Joint Intelligence Objectives Agency, organized by the Allied Joint Chiefs of Staff. The purpose of the JIOA was, first, to discover German industrial techniques which would aid in the war against Japan and, after V-J Day, it became its purpose simply to discover techniques of benefit to U. S., British and Canadian industry.

This article is the substance of a paper which Dr. Locke presented before the convention of the American Pulp & Paper Mill Superintendents Association (Pacific Coast Division) in Seattle, Dec. 8, and in addition he has supplied to PULP & PAPER INDUSTRY the accompanying photographs and flow sheet of the German installations.

Perhaps it should be pointed out that the production of this type of yeast, although holding possibility of becoming an important by-product of the sulfite industry, is in no way capable of solving the age-old waste liquor "problem" as it utilizes only a fraction of the effluent.

Neither should the production of this type of yeast be confused with the development a few years ago of a method for producing baker's yeast from sulfite waste liquor. This latter process has a much more limited market. Mersey Paper Co., Liverpool, Nova Scotia, pioneered in this development, working with the Best Yeast Co. The company's work progressed to the point it was able to establish another baker's yeast plant at Ontario Paper Co., Thorold, Ont., utilizing the sulfite waste liquor.

Table No. 1 gives the food yeast production per month in Germany during 1944 from sulfite waste liquor.

Table No. 2 gives the monthly production of yeast in Germany during 1944 from wood sugar obtained by the acid hydrolysis of wood. It should be noted that the production for the Dessau plant was from spent beer after an alcoholic fermentation.

In the beginning of 1944, the only company which had produced significant quantities of yeast from sulfite waste liquor was the Zellstofffabrik Waldhof. During the course of 1944, five new plants began production.

Zellstofffabrik Waldhof at Kelheim (February).

I. G. Wolfen, Yeast Plant 1 (February).

Zellstofffabrik Waldhof at Kostheim (May).

Feldmuhle at Obermunde (May).

Aschaffenberger Zellstoffwerke at Stockstadt (July).

In addition, the capacity of the plant at Mannheim-Waldhof was increased by 20% in November. Two additional plants were under construction at the end of the war, one the I. G. Wolfen Yeast Plant II which was to produce 6,000 tons of yeast per year, and the other, the Neusiedler Company Plant at Wiesenbach, to produce 1,800 tons per year. Only one unit (1,000 tons per year) of the former plant had been completed and was operated for only one month. It is interesting to note that all of these yeast plants with the exception of

Table I

Food Yeast Production in Tons from Sulfite Waste Liquor in Germany During 1944 (By Companies)

	Mannheim	Kelheim	Kostheim	Odermunde	Stockstadt	Wolfen
Monthly capacity	400	210	210	85	200	50
Maximum actual monthly production	370	189	118	47	116	44
Average monthly production	232	145	75.6	35.7	91.4	31

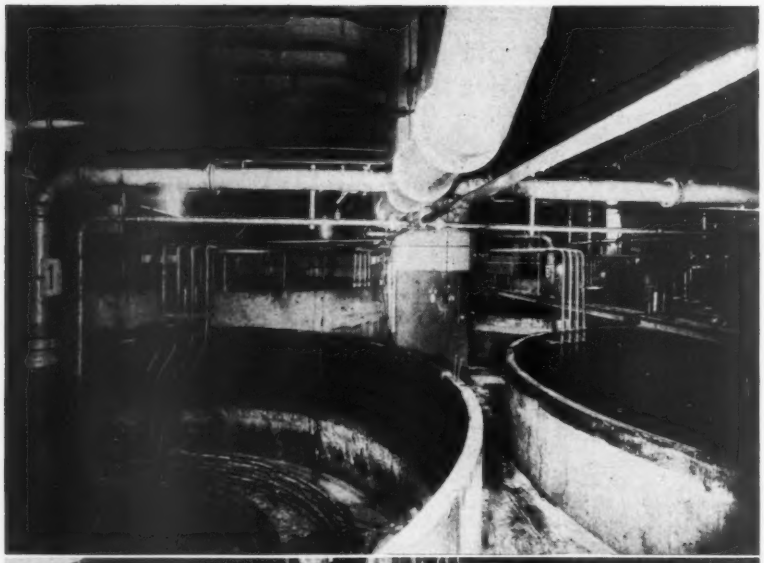
Table II

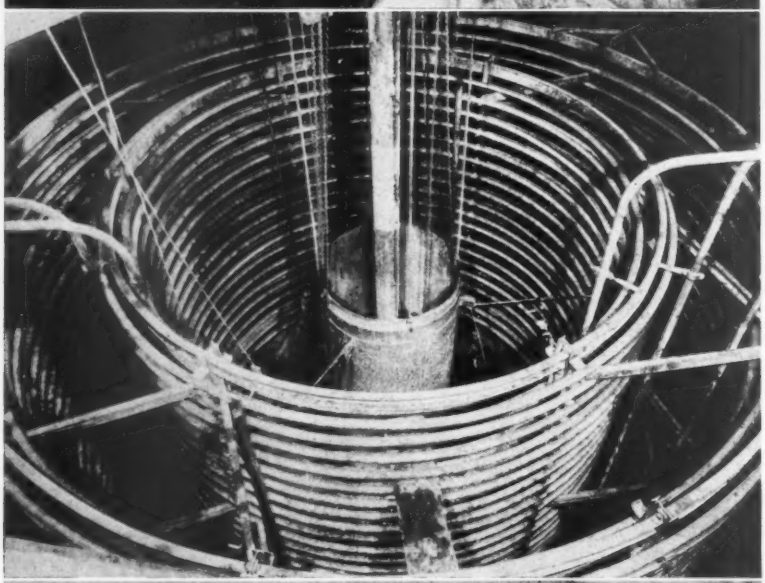
Monthly (1944) Production of Yeast in Germany from Wood Sugar Obtained by the Acid Hydrolysis of Wood

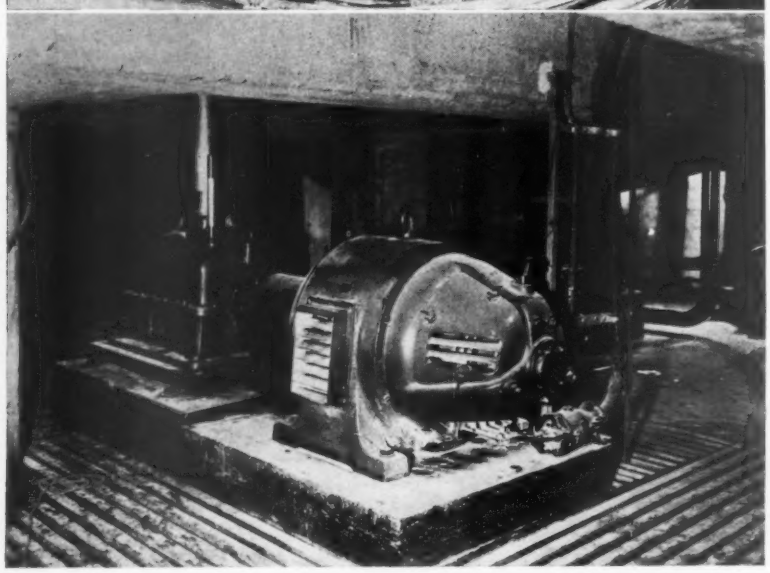
	Bergius Wood Sugar Plants		—Scholler Wood Sugar Plants—		
Month	Regensburg Tons	Mannheim-Rheinau Tons	Dessau* Tons	Holzminden Tons	Tornesch Tons
January	444	53	47	....	116
February	451	96	32	....	138
March	455	103	37	8	134
April	555	167	29	15	114
May	503	173	25	8	107
June	503	161	....	24	137
July	440	160	....	42	143
August	450	130	30	54	110
September	500	125	50	40	150
October	451	154	47	40	96
November	305	101	34	....	79
December	408	92	29	....	90
TOTAL	5465	1515	360	231	1414

Production of all plants 8985 tons.

*From spent beer.







THE STORY OF MANUFACTURE OF FOOD YEAST FROM SULFITE LIQUOR IN GERMANY is told in pictures on this and following pages with illustrations of consecutive steps in the process and of the equipment used:

Upper view: The operating floor showing the concrete alcohol fermenters, which were converted to production of food yeast for both humans and stock.

Middle: Cooling coils in the most recently constructed fermentor for yeast production. The draft tube which insures circulation is in middle of the equipment and in center of tube is the shaft for the agitator, which also serves as air inlet.

Lower: Motor (right) and gear reducer (left) for the older yeast propagators, which had bottom drive of the mechanical aerator.

the I. G. Wolfen Plant No. 1 used the method of Zellstofffabrik Waldhof.

Standard Yeast Plants

Apparently at the request of the German Reich, members of the industry met and discussed the design of a standard yeast plant for Germany which would produce a thousand tons of dry yeast per year. This standard design could be used for the construction of additional plants by building any number of these 1,000-ton units. As a result of these conferences, the Waldhof company designed what was known as the standard yeast plant and it was this basic design which was used for the construction of the additional plants.

The following is a summary of the Waldhof procedure for producing yeast on sulfite waste liquor:

Raw Materials

The customary procedure in German pulp mills was to drain the liquor from the digester. This liquor contained about 50% of the sugar produced in the sulfite cook. Since the pulp was washed in the digester, and the wash liquors drained off the pulp, these washings also were used. A total of 80% of the sugar produced was recovered with a concentration of from 2 to 4%. In the case of beech, this amounts to a 12.8% yield of sugar based on the dry weight of wood charged to the digester.

Neutralization

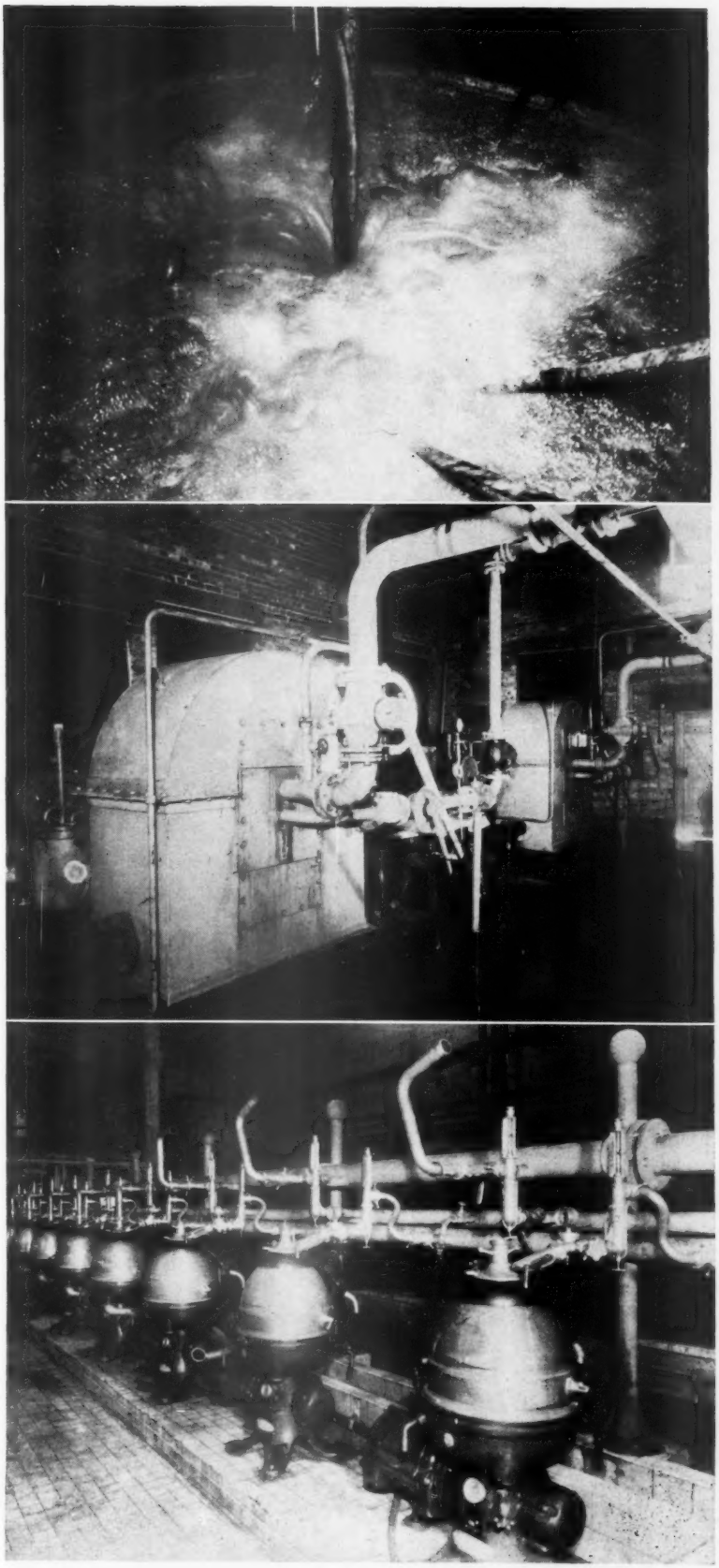
The combined liquor and washings were neutralized by lime with the agitation being accomplished by aeration. The final adjustment of pH was made by hydrated lime. The neutralized liquor was allowed to settle and the clear solution decanted. Then it was cooled in a heat exchanger and the nutrients diammonium phosphate, ammonia or ammonium sulfate, potassium

CONTINUING THE STORY IN PICTURES OF YEAST MANUFACTURE from sulfite waste liquor in Germany:

Upper view: The fermenter in operation (compare with top pictures on previous page). Note excellent dispersion of air.

Middle: The Schaumschleuder, which is used to de-aerate the yeast liquor suspension. It is employed, also, as a centrifugal pump to convey the liquid to the overhead feed of the centrifuge.

Lower: General view of operating floor, showing Westphalian centrifuges, which are used to prepare a 12% yeast cream to 20% as for washing the yeast.



chloride and magnesium sulfate added.

Fermentation

The fermentation which was continuous was carried out at a maximum temperature of 32° C. Since approximately 4,500 calories are liberated per kilogram of yeast produced, a large amount of cooling surface (200 m^2) was necessary in the fermenter. The cooling water requirements at 13°C were 41.5 m^3/hr. In addition the feed to the fermenter was cooled to 20°C.

Although most of the fermenters which we saw were of 300 cubic meter capacity, the fermenter for this standard plant had a capacity of 200 cubic meters. The following conditions were obtained in the fermenter:

Ratio liquid to emulsion—1:3.2.

Weight of emulsion—312 grams per liter.

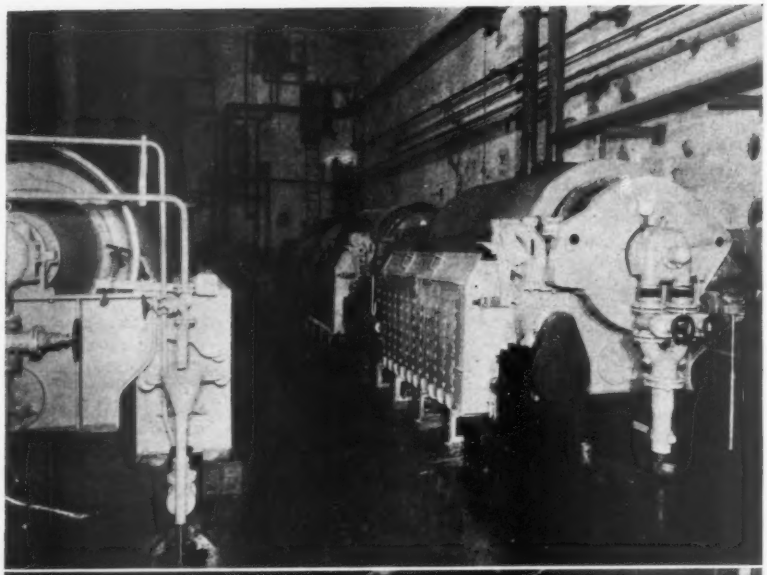
Amount liquid in fermenter—54 cu. meters.

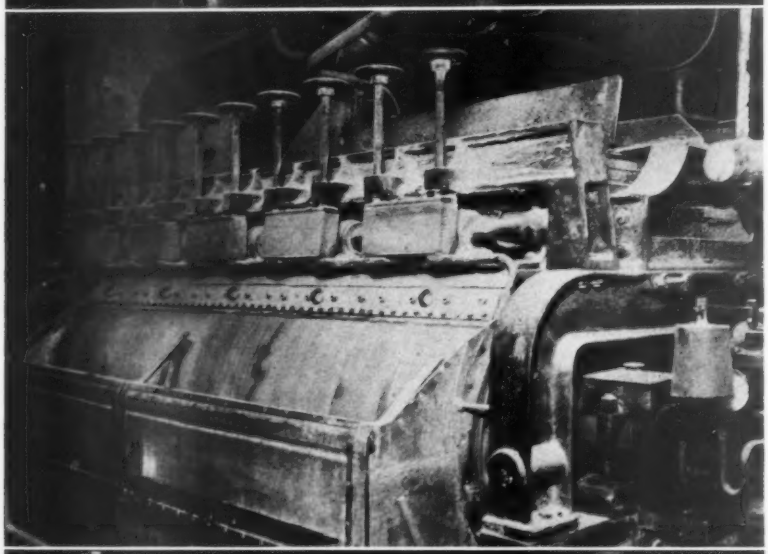
Amount of emulsion in fermenter —173 cu. meters.

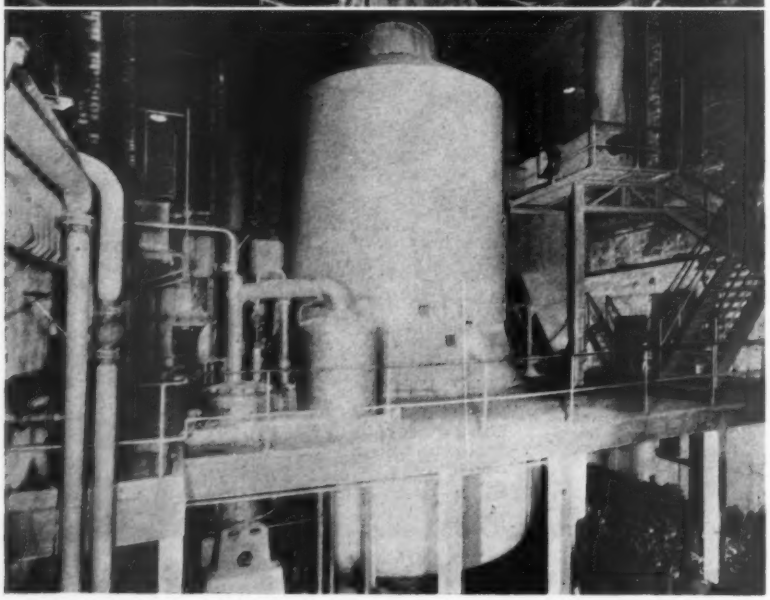
Power consumed—90 kw.

The rate of addition of feed and the time of fermentation was dependent on the sugar content rather than the rate of flow of liquid through the fermenter. With a solution containing 2.6% sugar, the rate of flow was 12 cubic meters per hour, and the time of fermentation 4½ hours. The yeast output from the fermenter was kept constant at 145 kilograms of yeast (7% moisture) per fermenter per hour.

The mechanical aerator used in this process consisted of a solid disk about 1.5 to 1.7 meters in diameter driven by a 100-kilowatt motor at 400 rpm. In the later installation at Mannheim (300 m^3 fermenter), the aeration disk was directly connected to a 985 rpm. 125 kw. motor. The air is supplied at a rate of five cubic meters per kilogram of yeast produced to this aerator through a center pipe which in the case of a top drive was the shaft. A center draft tube approxi-







CONCLUDING THE STORY IN PICTURES of yeast manufacture from sulfite liquor in Germany:

Upper view: Rotary filter installations for concentrating the 12% yeast cream to 20% yeast cake. Note autolysis chamber on side of rotary filter, which is used for liquefying yeast cake prior to pumping to dryers.

Middle: Two-drum rotary dryer used for preparing 93% flake yeast (this type of dryer usually used in Germany for preparing yeast for human consumption).

Lower: Spray-type dryer (used for preparing powdered yeast for stock feed, containing 7% moisture). On right of dryer are bags of finished yeast, below storage bins and packaging equipment. In left foreground, a single effect vacuum concentrator which prepares 30% yeast from a 12% yeast cream. This is an alternate method to the rotary filters (shown in upper view) for concentrating yeast prior to drying.

mately the size of an aeration disk insured satisfactory circulation of the liquor. The air was dispersed from the aerating disk by a number of openings just outside its outer circumference. The fermentation was carried out at a pH of 4.5 to 5.0.

While wood tanks were satisfactory, most of the fermenters were reinforced concrete lined with tile. The lining was necessary because of the violent mechanical agitation and low pH. In one case concrete fermenters had been lined with a synthetic resin after an attempt had been made to use them without any lining, because the consumer of the product objected to the presence of sand grains in his yeast.

Defoaming

The yeast emulsion flowed by gravity from the fermenter to a mechanical foam breaker which was termed an "Entluftungsschleuder" or "Schaumschleuder." This equipment separated the yeast suspension from the air and served as a centrifugal pump to take the yeast containing liquor to overhead storage tanks. This equipment, while similar to a basket type centrifuge with a solid basket, is operated with the shaft in a horizontal rather than a vertical position. The diameter of the basket was 1,300 mm. and rotated at 750 rpm. It should be noted that the early experiments at the I. G. Wolfen Plant No. 1 used a similar piece of equipment but which operated at a higher speed to remove a 20% yeast cake.

Centrifuging and Washing

The liquor, containing about 1% yeast, flowed by gravity from overhead storage tanks to conventional Westphalian yeast centrifuges from which a 12% cream was removed. The capacity of each centrifuge was about 76.5 kilograms of dry yeast per hour. Following the initial cen-

FLOW SHEET OF GERMAN YEAST PLANT producing 1800 metric tons a year from sulfite waste liquor containing 2 to 7% reducing substances (right). Liquid flow is about 18 cu. yards per hour.

It will be noted that identifications are in German. The important units are: (11) Fermenter (capacity about 160 cu. yds.); (16) Defoaming equipment; (20) (22) and (23) Centrifuges for first, second and third separation, respectively (between 20 and 22 and between 22 and 23, the yeast cream is diluted back to original concentration in order to wash it); (25) Vacuum concentrator; (26) Two-drum rotary dryers.

trifuging, the cream was diluted to its original concentration and fed to a second centrifuge. The operation then was repeated a second time. This is the only type of washing used.

Concentration

Two alternative methods could be employed for additional concentration from 12% to 20%. However, only about 90% of the yeast was obtained in the filter cake and it was found desirable to pass the liquid from the filter to a centrifuge to recover this other 10%.

The alternative method was to use a double effect vacuum evaporator to concentrate the 12% cream to 30%. This latter method accomplished the autolysis of the yeast during the concentration as well as producing a higher yeast concentrate. After the rotary filter, it was necessary to heat the 20% cake in order to liquify it before pumping to the dryers.

Drying

Again two methods are available. The first and the one which seemed to be preferred, although with a slightly higher production cost, employed a two-drum rotary dryer. The product was a flake yeast. The other method, which produced a fluffy yeast, used a spray dryer similar in construction to the ordinary milk dryer.

Cultures and Uses

During the course of investigating the production of alcohol and yeast in Germany, the following cultures were obtained by various individuals:

Torula (4 samples), Monilia candida, Candida arborea, and oidium lactus (3 samples). Except for the oidium lactus, no attempt was made by any operating plants to use pure strains of yeast.

An example of this might best be illustrated by the following: At one plant the food yeast culture was destroyed by the occupying troops. When production was resumed, a handful of sweepings from the floor were used to obtain a new innocu-

lum. And strange as it may seem, perfectly satisfactory results were obtained.

From the experience gained by the Germans, as well as the Scandinavian countries, there apparently is no doubt as to the nutritional value of Torula yeast for either human food or stock and poultry feeds. Many feeding tests have been made and the results of these are available in the literature.

It was not an uncommon sight in German shops to see a card in the window signifying the availability of "Flocken Hefe." The German technicians and scientists with whom this subject was discussed were in general agreement that for constant daily use, the yeast should be considered as a supplementary protein in the diet and not as the main source of protein. For human consumption, 20 grams a day seemed to be the desirable quantity.

Conclusions

During the course of the recent investigations of German industry, detailed information has been obtained on the production of yeast from waste sulfite liquor based upon several years operation of commercial plants during the war.

Additional information may be secured from documents which have been evacuated from Germany and forwarded to the official depository of the Forest Products Sub-Committee of the Joint Intelligence Objectives Agency at the U. S. Forest Products Laboratory, Madison, Wis. These include not only microfilms of German reports and correspondence, but also blueprints of German yeast plants and equipment. Likewise sub-cultures of the organisms which were obtained in Germany have been forwarded to Madison and will be available from that source.

We at the Pacific Northwest Forest and Range Experiment Station, Portland, Ore., will be glad to assist anyone who is studying the details of this process in obtaining access to documents or subcultures of the organisms.

While the conversion of the sugars in sulfite waste liquor to yeast is by no means the answer to the utilization of this material, it certainly is an important step forward. As we all know, the Pacific Northwest, especially, is a protein deficient area and for stock and poultry feeds we have been dependent upon the producers of cottonseed meal, soya bean cake and fish meal. Here is an opportunity for the Pacific Northwest to partially satisfy that deficiency.

ROGER J. EGAN, whose appointment as Vice President of Bulkley, Dunton Pulp Co., is announced by President Fred Enders.

Mr. Egan's 25 years with B-D have been devoted to sales and mill relations, except for a period during war when he was Eastern Representative of some Pacific Coast mills particularly in liaison with the U. S. Government. His efforts brought a better understanding in government of pulp industry problems.

Mr. Egan has traveled extensively for his company, meeting industry leaders in all parts of the continent.

Value of Wood Yeast Protein

"Wood Yeast Protein as Feed for Livestock" is the title of Technical Bulletin 83, issued in July, 1945, by the Agricultural Experimental Station, University of N. H., New Hampshire, Durham, N. H., by E. G. Ritzman.

His conclusions were:

"Although the chemical composition of yeast has received considerable intensive study there exists as yet but little experimental evidence on its nutritive value and this relates mainly to small laboratory animals.

"Chemistry has, however, shown that in its composition wood yeast ranks as one of the most concentrated sources of food protein and B vitamins. The full significance of this fact can only be surmised until actual experiment with farm livestock shows the degree to which such animals can make use of protein from this source for productive purposes.

"The first stage of such research has just been completed at this laboratory. This has involved a determination of the digestibility or degree to which the protein content of yeast is absorbed and thus available, and of the maximum amount which can safely be fed. The results have been favorable in both respects, but further research will be required to determine the degree to which such absorbed protein can be utilized by the animal for the production of milk or to promote growth."

COL. JOHN L. FARLEY, who has returned to Industrial and Public Relations Dept., Crown Zellerbach Corp., after five years active duty in Coast Artillery, U. S. Army, and is headquartered in new office in Public Service Bldg., Portland, Ore. Interested in any suggestions as to where he and Mrs. Farley might find home in Portland area.

For 39 months Colonel Farley was based at Fort Richardson, near Anchorage, Alaska, serving on Commanding General's staff as Department Coast Defense Officer. In charge of Alaskan sea coast defenses, he toured over 70,000 miles by air between Attu and Annette Islands on extreme southwest and southeast tips of Alaska. An ex-California National Guard officer, Col. Farley was in regular army from Sept., 1940, until his recent honorable discharge.

He was born in Oxford, Ohio, and lived for many years at River Falls, Wis., graduating from U. of Wisconsin. The Farleys' two sons are in service, one a major in air corps and the other, a coast artillery captain.

F. R. Pearson, Asst. Mgr. At Shelton, Passes

F. Russell Pearson, assistant manager of the Shelton, Wash., division of Rayonier Incorporated, died suddenly from a heart ailment on Dec. 31 at Shelton. Mr. Pearson, a native of Chicago, was 53 years old.

It was believed his illness was the result of complications after a spinal meningitis affliction last August.

Survivors include his widow, Mrs. Hazel Pearson, and a sister, Mrs. E. M. Mills, of San Francisco, wife of the chairman of the executive committee of Rayonier Incorporated.

Mr. Pearson moved to the Shelton pulp mill in 1936 from the company plant at Port Angeles, Wash.

He was employed by the Olympic Forest Products company, a forerunner of the Rayonier plant, in 1933.

Joins H. & W.

Clarke H. Morian, Jr., joined Hollingsworth & Whitney Co. Jan. 1 as sales representative at 230 Park Ave., New York, it is announced by James L. Madden, president.

Mr. Morian is a graduate of Haverford College and for six years has been associated with Cherry River Paper Co.

Wire Manufacturers Kept Touch With Paper Mills During Strike

During the recent wire weavers' strike the fourdrinier wire manufacturers kept directly in touch with almost every customer, Harry G. Specht, vice president and general manager of the Eastwood-Nealley Corp., told PULP & PAPER INDUSTRY.

"We kept in touch with them to secure all the factual data with regard to inventories," Mr. Specht said. "There were few machines in the industry with less than three months' inventories. In the East, we also kept in touch with all customers and those machines which were close on inventory were protected to a large extent through our ability to deliver wires on the very day the strike ended. I believe that not a single paper machine in the country was shut down because of this program."

Paper mills were genuinely concerned, Mr. Specht said.

"We know of no mill that was not concerned about the possibility that the strike might go on for three or four months. As you probably know, the fourdrinier wire industry has to keep factual data on each machine in the country and we are thus in very close touch. Also, Mr. Tinker, secretary of AP&PA, sent out a number of bulletins to members, keeping them informed of the developments. There is no question but what a number of the mills were worried—we were doing considerable worrying ourselves—but I am sure the mill executives, in general, were informed."

Mr. Specht expressed the conviction that the sooner it is realized that a strike in any one plant concerns everyone in the area, in the industry, and indeed throughout the U. S., the sooner the big problem will be solved.

"Labor and industry must find other means to settle disputes than by strikes—most progressive labor leaders are saying this," Mr. Specht said.

"The power of the strike is the power to destroy," he told PULP & PAPER INDUSTRY in his Belleville, N. J. office. "We are vitally concerned with any strike in any company in this city, or in the state of New Jersey.

"We are certainly more than interested in every strike that occurs in the paper industry," he continued. "Their problems concern us, and our problems concern them. When

HARRY G. SPECHT, Vice President and Gen. Mgr., Eastwood Nealley Corp.: "It seems to me the manufacturers of America have been too indifferent toward the strike in a neighboring plant."

Thomas of the automotive industry served notice that his program was to strike one company at a time and thus ultimately get them all, he set a pattern that labor cannot afford to follow. I am convinced that the great majority of American workers are builders, not destroyers.

"It seems to me that the manufacturers of America have been too indifferent toward the strike in their neighbor's plant," Mr. Specht said. "Now it is beginning to hit all of us, and we begin to see that the strike in the neighboring plant will spread like a fire and may in time destroy industry."

It is this indifference which has enabled labor-management difficulties to spread so far and so fast, Mr. Specht believes.

"Unless we can arouse the spirit of our American people, and especially American industry, to the extent that it will concern itself with its neighbors' trouble on a basis of understanding cooperation, we will pay a severe penalty in the end," Mr. Specht concluded.

Morrell Helps DAV In Paper Industry

Rufus I. Worrell, president of Mead Sales Co., is directing the campaign for the pulp and paper industry's share of the Disabled American Veterans National Service Fund.

The DAV is conducting a campaign for $10,000,000 for a rehabilitation program for disabled veterans.

MR. AND MRS. RUSSELL J. LEROUX, in picture taken by PULP & PAPER INDUSTRY at Rhinelander, Wis., where they have acquired a new home. Mr. LeRoux is Assistant to President of Rhinelander Paper Co.

Russell LeRouxs Have Narrow Escape

Russell J. LeRoux, assistant to the president and director of sales, Rhinelander Paper Co., and Mrs. Le Roux were injured Dec. 13 in an autohobile accident when their car overturned on an ice-sheathed road one mile north of Marion, Wis.

Mrs. LeRoux, who spent most of the time till Christmas in hospital, had 14 stitches taken in a cut from crown of head to back of left ear and sustained other bad bruises, but fortunately she will have no visible scars. Mr. LeRoux had only a bruised right wrist and hand and other minor bruises.

The couple were driving from Rhinelander, Wis., to Appleton, Wis. A farmer took them to a hospital in Clintonville where Mrs. LeRoux's head wound was sewed.

The LeRoux's had moved to Rhinelander only last Oct. 1 from Everett, Wash., where he was manager of the Weyerhaeuser pulp mill. After living for some time in a hotel, they purchased a home at 123 North Baird Ave., Rhinelander, and moved into it Dec. 1, only two weeks before the accident. They also have purchased a lot, on which they plan to build a new home in a year or so.

"Pal," their widely known dog of varied ancestry, escaped the accident—he was temporarily at a farm.

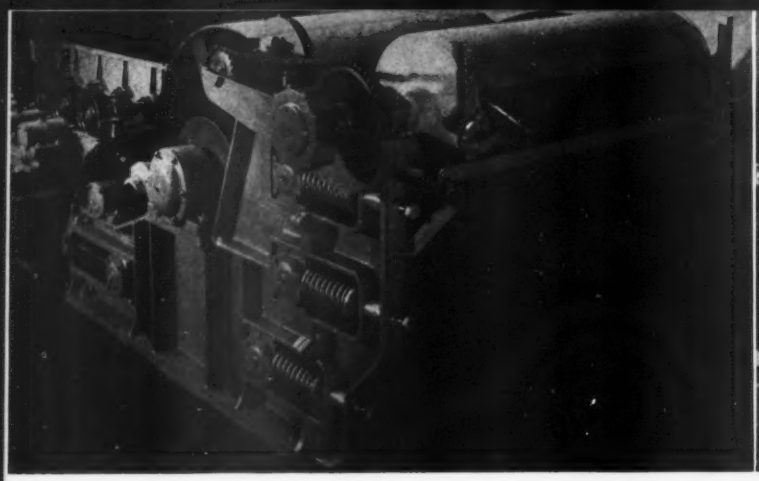
George Bradburn Dies

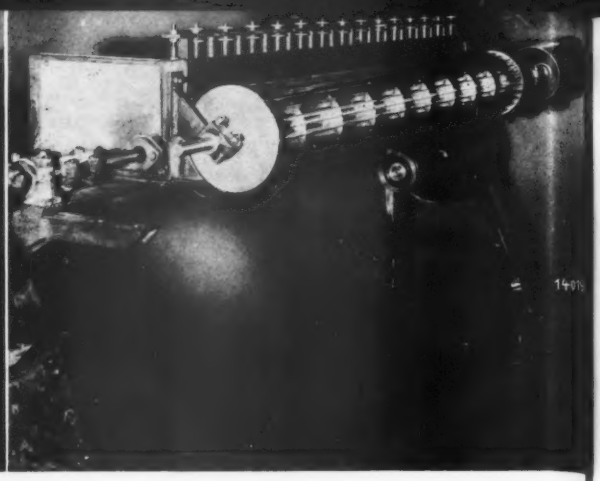
George Bradburn, 63, son of Holyoke's great paper men, H. Dwight Bradburn, died Dec. 13 at his home in Providence, R. I.

George Bradburn was born in Holyoke and for a time was associated with his father who was manager of Nonotuck Paper Mfg. Co., and later was with the Hurlburt Paper Co. in South Lee, Mass.

Joins Ontario Govt.

W. B. Crombie, formerly resident engineer for Marathon Paper Mills at Marathon, Ont., has joined the Hydro Electric Power Commission of Ontario.





TWO NEW EXAMPLES OF GERMAN PULP AND PAPER MACHINERY, both still in laboratory stage.
Voith-Scheufelen pulp washer or filter (left) has diameter of 49 inches. Produces 25-35 tons daily of pulp of 30-36% consistency from initial consistency of 3-12%.

Stock inlet (right) invented by Dr. Walter Brecht of the destroyed Technical High School of Darmstadt, which aims to produce paper web with nearly same strength in both directions of paper.

NEW GERMAN MILL MACHINERY REVEALED AFTER SIX YEARS

Finkh pulp screen is standout piece of equipment. Little else of importance developed. New pulp washer and stock inlet are unproven.

The official American, British and Canadian technical investigators, who recently returned to their homes after several weeks of expert scrutiny of the German industries, found only a few interesting pieces of equipment in the pulp and paper industry of that country. Six years of secrecy had not hidden much of importance.

Among the new machinery was a Voith-Scheufelen pulp washer or filter constructed by the Voith Works in Heidenheim. Also a Finkh pulp screen, manufactured by Herman Finkh, Reutlingen, and used both as a knotter and fine screen. And—as in America—the Germans had given attention to getting improved flow of stock onto paper machines and had developed a new stock inlet.

C. P. Winslow, director of the U. S. Forest Products Laboratory at Madison, Wis., headed the so-called Forest Products Sub-Committee of the Joint Intelligence Objectives Agency, which was created by Allied Joint Chiefs of Staff to make the investigation into Germany's industries.

This group included several men who are widely known in the pulp and paper industry and one of these was John N. McGovern, technologist in the Pulp and Paper Division at the Madison laboratory. With G. H. McGregor, he prepared a study on pulping qualities and characteristics of less commonly used pulpwood species, published in PULP & PAPER INDUSTRY (Oct. 1943, page 13) and presented at the 1943 Army-Navy TAPPI-sponsored Chicago conference of that year and he has worked on a number of other pulp industry projects at Madison.

Mr. McGovern spent about two months in Germany, longer than some of the others in the American group. He was among those who observed some of the new German equipment in pulp and paper mills, although the group did not make particular point of investigating machinery. He obtained documents and photographs of some equipment.

New Pulp Washer

The Voith-Scheufelen filter or washer, shown in an illustration with this article, was creating considerable interest in European pulp industry circles but apparently its value had not been proven in actual practice. It was, presumably, an improvement over the Voith pressure washers which have manufactured in the United States by license.

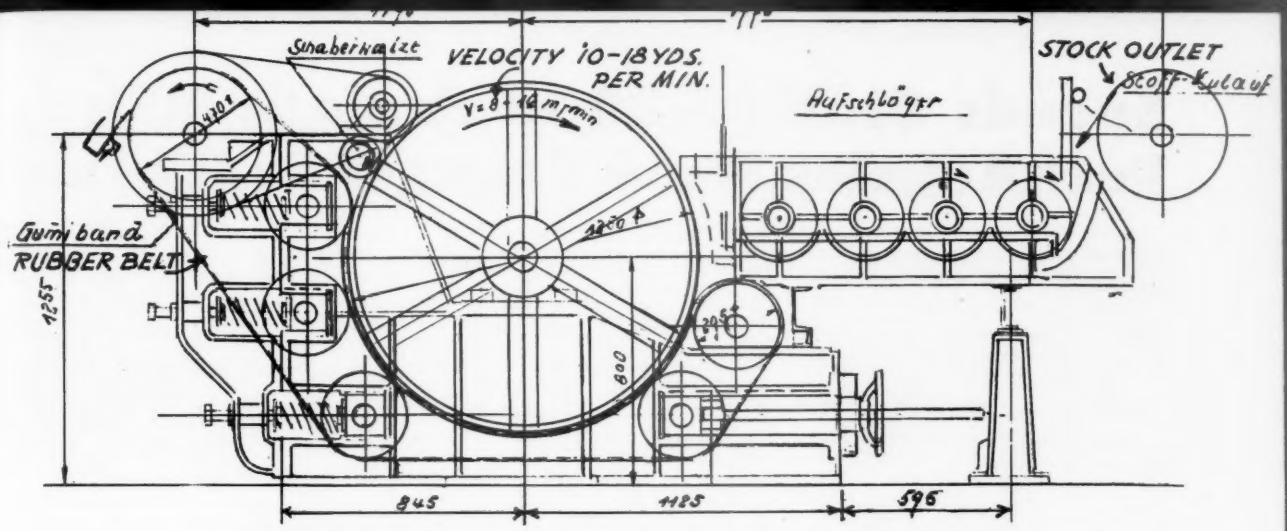
The cylinder of the Voith-Scheufelen machine has a diameter of approximately 49 inches and the dried pulp web has a width of approximately 40 inches. The pressure applied against the rubber apron is about 0.9 pound per inch width. The output of the washer varies from 25 to 35 metric tons per day for pulps having initial consistencies of 3 to 12%, respectively. The consistency of the pulp leaving the washer is 30 to 36%, depending on the initial consistency, temperature, and freeness.

Dr. Brecht's Stock Inlet

A picture is also shown of the Voith-Brecht stock inlet. This device, also described as in the experimental stage, was invented by Professor Walter Brecht, wartime head of the Technical High School at Darmstadt, Germany—alma mater of many papermakers now in North American mills. Dr. Brecht was in-

COVERING GERMANY

In this article PULP & PAPER INDUSTRY brings its readers the first report on some interesting pulp and papermaking equipment developed in Germany behind the veil of wartime secrecy. This is the third article of this type—disclosing pulp and paper industry developments in Germany—published in the past two issues of PULP & PAPER INDUSTRY. A general discussion of German techniques, based on observations by Gilbert K. Dickerman, technical director, Consolidated Water Power & Paper Co., appeared in November (page 22) and an illustrated description of German manufacture of yeast from sulfite liquor appears in this issue (page 20).



PULP WASHER OR FILTER DEVELOPED IN GERMANY. This Voith washer has diameter of 49 inches and dried pulp web width of 40 inches. Pressure against rubber apron is 9/10 lbs. per inch width. Output is 25-35 tons per day.

terviewed by the mission, which found his school thoroughly wrecked by bombs.

His device has the purpose of producing a paper web with nearly the same strength in both directions of the paper. It was built by Voith, and was tried out in a mill-scale demonstration at Unterkochen. This trial was not particularly successful. The wet web was satisfactorily isotropic but a large part of this advantage was lost during passage through the press and dryer parts of the machine.

The men at Voith, however, were still optimistic about the possibilities of the apparatus, Mr. McGovern told PULP & PAPER INDUSTRY. A microfilm copy of a report by Dr. Brecht on the trial at Unterkochen is available at the Forest Products Laboratory.

"It was evident there were very few outstanding developments in pulp and paper machinery," said Mr. McGovern. "As a matter of fact, the only piece of equipment which really stood out was the pulp screen made by Hermann Finkh. Used as both a knotter and fine screen, it was highly thought of."

Finkh Screen

The Finkh screen is small, about 40 inches by 60 inches in size. Mr. McGovern was unable to get a photograph of it.

He said the screen plate was somewhat dished in shape and was suspended from a screen frame. The screen was given a vibrating and forward motion which forced the stock through the screen holes and pushed the rejects across the length of the screen and over the high portion of the plate.

It is understood that this is based on a Swedish development.

The Americans heard in London that a later British "team" was going to investigate the German pulp and paper equipment, especially, and that possibly American equipment and machinery men would be invited to go abroad and participate in the investigation.

Delaware Groups Hear About "Paper Homes"

"The Use and Abuse of Fiber Board in Modern Home Construction" was the topic featured at the January meeting of the Deleware Valley Section of TAPPI on Jan. 4 at the Engineers' Club, Philadelphia. The speaker was Griffith Clark, vice president of Precision Built Homes.

Shaneman Becomes President Of Penn Salt of Washington

FRED C. SHANEMAN, whose appointment as President of Pennsylvania Salt Co. of Washington is announced by Leonard T. Beale, President of parent company.

Fred C. Shaneman has been named president of Pennsylvania Salt Manufacturing Co. of Washington, Tacoma, Wash., a subsidiary of the Pennsylvania Salt Manufacturing Co.

Announcement of the appointment was made by Leonard T. Beale, president of the parent company in Philadelphia.

Mr. Shaneman served as vice president of the Washington subsidiary since 1939. He joined Penn Salt in 1930 as salesman and assistant to the manager of the Tacoma, Wash., plant. He became sales manager in 1931 and in 1933 was named manager of the subsidiary company, then known as the Tacoma Electro-Chemical Co.

For four years, 1938-1942, Mr. Shaneman was secretary-treasurer of the Pacific Section of TAPPI and during this period a national TAPPI convention was held in Seattle (1940) to which he devoted much time and effort.

He is a director of the Puget Sound Sound National Bank in Tacoma and of American Mail Line.

Born in Birdsboro, Pa., Mr. Shaneman was graduated from Dartmouth in 1925 and was prominent in intercollegiate athletics. In 1930 he married Miss Marjorie Jeffries of Tacoma, daughter of Frank Jeffries, who until recent retirement was a prominent Northwest paper merchant.

Spends $1,000,000 at Antioch Mill; Port Angeles Plant Changes to Oil Fuel

Fibreboard Products Inc. is spending more than $1,000,000 modernizing its Antioch, Calif., paperboard mill and converting plant for more efficient production of cartons and shipping containers, according to D. H. Patterson, Jr., president.

The program calls for addition of a board machine, high-pressure boilers and two turbines in the power plant. The converting plant for shipping containers and the carton plant for folding cartons, pails and fruit packing materals are being enlarged.

The Antioch plant is one of the oldest paperboard mills on the Pacific Coast, having been established over 50 years ago, and is one of the six board mills and eight converting plants of Fibreboard Products Inc. strategically located to serve the major industrial areas of the Pacific Coast.

Bob Bundy Becomes General Operating Manager

Robert E. Bundy, vice president and general manager of Federal Container Co., West Philadelphia, a wholly-owned subsidiary of Fibreboard Products Inc., has been transferred to the head office of the parent company at San Francisco as general operating manager.

N. M. Brisbois, vice president in charge of operations, who toured northern Fibreboard mills in mid-December with Mr. Bundy, made the announcement.

B. P. Altick, sales manager of Federal, has been elected vice president and general manager of that company to succeed Mr. Bundy. Mr. Altick went east from California and Mr. Bundy went there from Port Angeles, Wash., mill where he preceded Verne Basom as manager.

In line with the general trend of Pacific Coast industries away from use of hogged fuel to other sources of energy, the Port Angeles, Wash., division of Fibreboard Products Inc., is changing over to oil fuel.

Closer use of wood in the west, with result that less waste wood is available for burning is the reason for this change.

N. M. Brisbois, vice president in charge of operations of the Fibreboard company, told PULP & PAPER INDUSTRY the work of installing oil burners, of building a 35,000-gal. fuel oil tank and of making changes in the five existing boilers at the Olympic Peninsula mill would be completed this spring.

This is the last of the Fibreboard mills to use hogged fuel.

Mr. Brisbois also said that the Sumner, Wash., division of the company is adding 15,000 square feet of building space for storage.

RAYONIER INCORPORATED RECENTLY ANNOUNCED SEVERAL PROMOTIONS of some of its top flight executives. Here are shown President Edward Bartsch, with three men who were promoted to Vice Presidencies during the past year, and Secretary Charles H. Conrad. Left to right: Mr. Bartsch; William E. Breitenbach and Martin N. Deggeller, chosen Vice Presidents early this year; W. S. Lucey, promoted to Vice President at the recent annual meeting, and Mr. Conrad. Mr. Breitenbach also is Resident Mgr. at Port Angeles and oversees the three western mills' operations; Mr. Deggeller heads the "young" Timber Division, headquarters in Olympia, Wash., and Mr. Lucey, a Director and former Grays Harbor Division Mgr., is now stationed in New York.

MORE RAYONIER MEN RE-APPOINTED TO KEY POSITIONS OR PROMOTED (left to right): Morton B. Houston, re-appointed Northwest Representative, headquarters in Seattle; George A. Holt, promoted to Assistant Resident Manager, Grays Harbor Div., Hoquiam, Wash. (Lyall Tracy is Res. Mgr.); James T. Sheehy, promoted to Resident Manager, Fernandina, Fla., Div.; Henry A. Sprague, appointed Assistant Secretary of the company and continuing as Assistant Resident Manager, Port Angeles, Wash., Div., and Meder Johnson, promoted to Assistant Resident Manager, Port Angeles.

1500-Volume Hibbert Library Purchased by Crown Zellerbach Corp.

ROBERT MISPLEY, Assistant Technical Director, Central Tech. Dept., Crown Zellerbach Corp., is symbolically receiving for his company the "delivery" of the library of the late DR. HAROLD HIBBERT from his widow. Many more shelves of valuable books lined the walls in their home at New Haven, Conn., and will be moved to Camas, Wash.

Purchase by Crown Zellerbach Corp. of the entire scientific library of the late Dr. Harold Hibbert was recently announced by William R. Barber, technical director.

Dr. Hibbert, who died on May 13, 1945, had been E. B. Eddy professor of industrial and cellulose chemistry at McGill University, Montreal, from 1925 until his retirement in 1943. He had long been eminent in chemical science and had established himself as an internationally recognized authority in the fields of cellulose and lignin. The library represents the accumulation of over 30 years of Dr. Hibbert's lifetime of teaching and research in chemistry.

Comprising some 1,500 volumes, the library will be housed in Crown Zellerbach Corp.'s research laboratory at Camas, Wash. It is planned, said Mr. Barber, to keep the collection intact and it will be named the Hibbert Library.

Together with its present library, the company's research department will now possess one of the most complete sources of reference literature in the many fields of chemistry.

In the collection are many sets of scientific journals, some of which are irreplaceable since the destruction and damage by war of much of the Eropean scientific literature.

Included are complete sets of the Berichte der Deutschen Chemischen Gesellschaft; the Journal of the American Chemical Society; American, British and German journals of chemistry, engineering, textiles and scientific abstracts; Cross and Bevan's Researches on Cellulose; Freudenberg's Tannin, Cellulose Lignin; Ullmann's Enzykklopadie der Technischen Chemie; Kekule's Lehrbuch der Organischen Chemie. The library also contains many volumes on the chemistry of acetylene and calcium carbide and the subsequent development of high polymers; on sugar and carbohydrate chemistry, and on the physiology of plant life.

Robert G. Mispley, assistant technical director, Central Tech. Dept., Crown Zellerbach Corp., went to New Haven, Conn., to supervise the packing of the books for shipment.

Mrs. Hibbert's Comment

Interviewed at her New Haven home, Mrs. Hibbert told PULP & PAPER INDUSTRY:

Late Dr. Harold Hibbert, whose extensive library has been purchased by Crown Zellerbach Corp.

"I am grateful to Crown Zellerbach for keeping the library intact as a Hibbert memorial, and delighted that the books will again be put to use by research workers, including, possibly, former students of my husband's.

"In particular, I appreciate Mr. Barber's great consideration in sparing for eight days Mr. Robert Mispley, who was always so courteous and thoughtful and who gave to the work such intelligent interest that the packing was not the ordeal which I had dreaded.

"The gift of the photographs made it easier for me to face the bare library shelves; these pictures will be a treasured memento.

"I feel convinced that Harold would have been glad for his cherished books to find a home in the Pacific Northwest which he loved so well."

Dr. Hibbert's Career

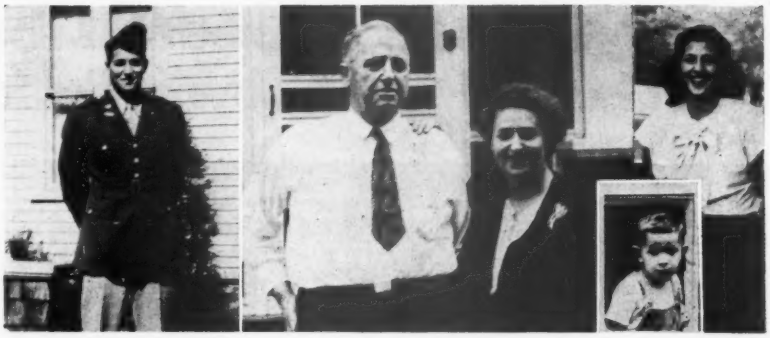
English-born and English-educated, Dr. Hibbert took his B. Sc. degree at Victoria University, Manchester, received his master's degree at Victoria University in 1900. He taught at the University of Wales until 1904, then attended the University of Leipzig to obtain in 1906 his Ph. D. degree summa cum laude. After two years in the United States under Arthur Michael at Tufts College he returned to England to do research at the Imperial College of Science, London, and in 1911 received the coveted award of D. Sc. from Vic-

toria U. He was with E. I. du Pont de Nemours Co. and at the Mellon Institute until 1919 when he joined the Yale University faculty. During the last year of World War I he acted as adviser on gas warfare to the British War Mission in Washington.

In 1925 Dr. Hibbert accepted the E. B. Eddy professorship at McGill, after which time his scientific studies dealt mainly with the problems of wood chemistry, particularly with the highly complex structure of lignin.

In 1936 the University of British Columbia conferred on him the LL. D. degree honoris causa. In 1943 he was awarded honorary membership in the Society of Chemical Industry. And in 1945, a few weeks before his death he received word that he had been elected to the National Academy of Sciences.

More than two hundred papers were published by Dr. Hibbert alone or in collaboration. His work includes discoveries in nitrocellulose; isolation of the two solid isometric forms of nitroglycerine; new methods for manufacture of acetic acid and acetaldehyde from acetylene; research which developed the structural formula of cellulose and led to the Hibbert-Michael pyranose-furanose ring theory; the conversion of bacterial cellulose to acetate silk filament; and lignin research which isolated monomeric fission products of known constitution of the guaiacyl type, with three carbons in the aliphatic side-chains which revealed the basically aromatic structure of this cellulose residuum.



CAPT. RICHARD DOZIER, U. S. Army, who commanded a tank company in the South Pacific and finally on the Island of Leyte, got back to Rhinelander, Wis., and the home of his parents, Mr. and Mrs. Lewis Dozier, just before Christmas.

His wife and little son, Richard, awaited him at the Doziers' home. Lewis Dozier is Paper Mill Supt. of Rhinelander Paper Co. His son was an apprentice salesman for Sutherland Paper Co., Kalamazoo, Mich., before entering the Army.

Here are (left to right): Capt. Dozier, Lewis Dozier and his wife, Margaret, and their daughter, Audrey Dozier, sister of the captain. Little Richard (shown in inset) is apple of his granddaddy's eye.

PACIFIC COAST TAPPI MEETS FEB. 5 IN LONGVIEW

A round table free-for-all discussion of the now critical subject—"Utilization of Wood Waste"—will feature the afternoon session when the Pacific Coast section of TAPPI meets again Tuesday, Feb. 5, at Longview.

This panel discussion, led by Dean Paul Dunn, forestry school, Oregon State College, will start at 2:30 p. m. and be held in the Women's Club, Kessler Blvd. At 6:30 the meeting will be transferred to the Longview Country Club for dinner and entertainment.

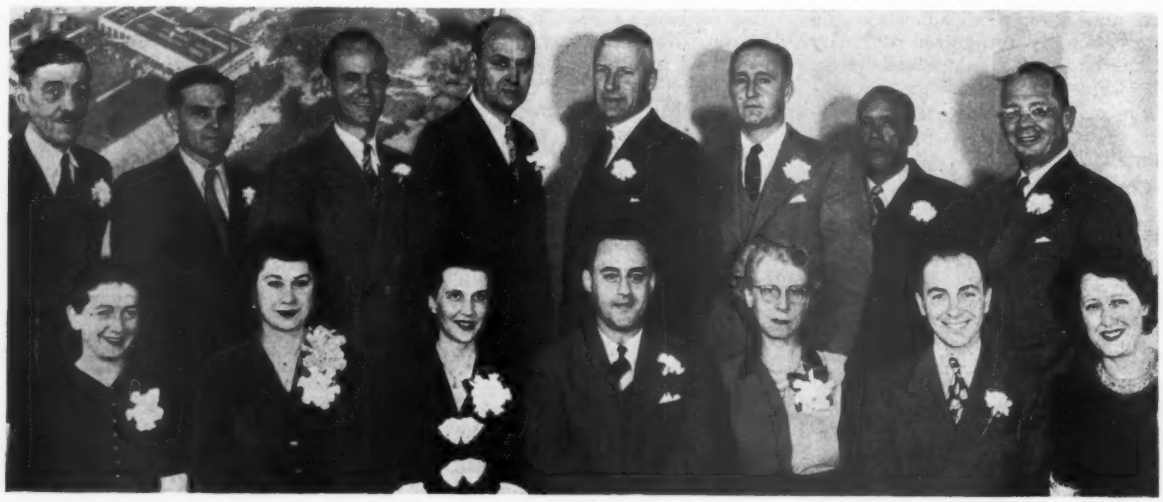
Harold Bialkowsky, technical director, Everett pulp mill, Weyerhaeuser Timber Co., is chairman. George Galloway, technical assistant to paper mill superintendent, Crown Zellerbach Corp., Camas, Wash., is in charge of the program. Bob True, General Dyestuff Corp., Terminal Sales Bldg., Portland, Ore., is handling reservations.

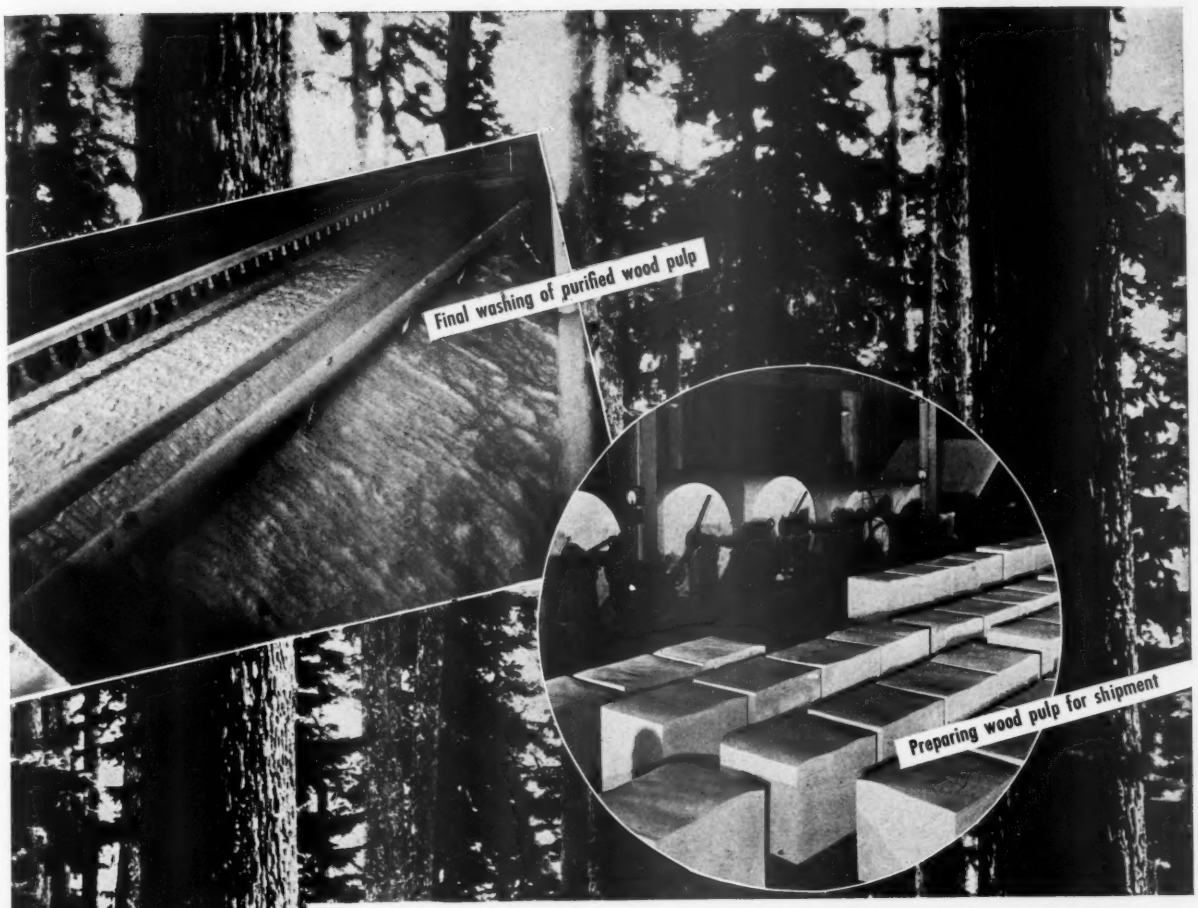
At a service pin presentation at Crown Zellerbach Corp. headquarters, San Francisco, Nov. 20, pins were given by Louis Bloch, Chairman; J. D. Zellerbach, president, and R. A. McDonald, executive vice president, to the following:

Seated (left to right): Ann Gallagher, for 5 yrs., Beatrice Pena, 5 yrs.; Lillien Kearney, 5 yrs.; Louis Liati, 10 yrs.; Estelle Jacobs, 25 yrs.; Milton Anninos, 10 yrs., and Sadie Browning Anderson, 20 yrs.

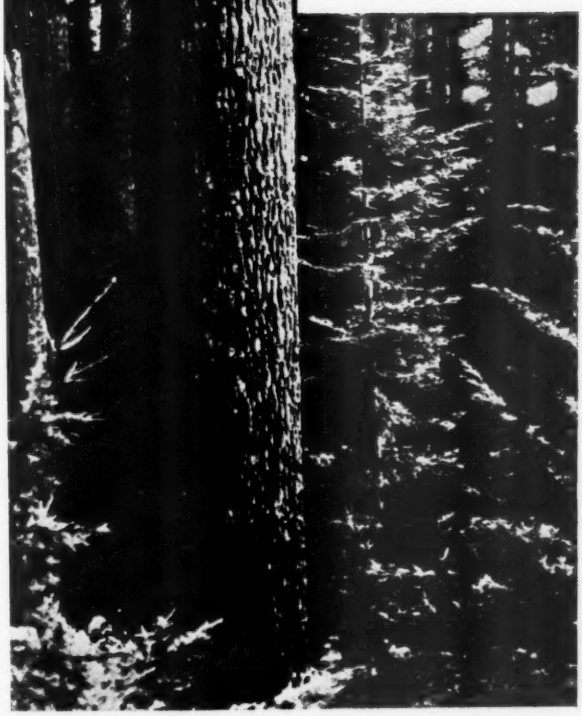
Stanaing (left to right): Geo. F. Lindale, 20 yrs.; Laurence Poncet, 5 yrs.; Peter D. Duignan, 15 yrs.; Loren L. Jay, 5 yrs.; John L. Farley, 5 yrs.; A. B. Layton, 20 yrs.; Norris Gaynes, 10 yrs.; Earl V. Knapp, 35 yrs.

Absent were Mildred Cantrell, 10 yrs.; W. L. Ferguson, 20 yrs.; Sadie Murphy, 25 yrs., and Joseph Nichols, 5 yrs.





WOODPULP–THE PRIMARY SOURCE OF RAYON



More than three-fourths of all cellulose consumed by the rayon industry consists of highly refined wood pulp. As the leading producer of this highly specialized raw material, Rayonier devotes its technical efforts, in war and in peace, to the development of new forms of cellulose to benefit mankind.

This program includes the maintenance of the highest standards of present-day wood pulp qualities, the development of pulps for new uses, and the improvement of present pulps.

The company's research laboratory is staffed by men of broad experience and outlook who are capable of providing the highest quality products and service. Close collaboration with customers on their individual problems is the guiding influence in all of our activities.

Uniform quality, a feature of Rayonier pulps, has been obtained by special processes and equipment, knowledge of the required properties and careful control of operations. That is why Rayonier pulps are the best today — why they will be even better tomorrow.

RAYONIER
INCORPORATED

Sales and Executive Offices: 122 East 42nd Street, New York 17, N.Y.
Mills: Hoquiam, Port Angeles and Shelton, Wash., and Fernandina, Fla.

I. P. TO USE CONSOLIDATED PROCESS

Palmer, N.Y., Mill, West Linn, Ore., And 3 Wisconsin Mills to Use Mead Firm's Patents

Recent photo of the "mother mill" of Consolidated Water Power & Paper Co., at Wisconsin Rapids, Wis., where on-the-machine coating system was developed a decade ago and which now is proving so timely and valuable in meeting needs of big circulation magazines.

Another big pulp and paper industry—this time the Palmer, N. Y., mill of International Paper Co.—has been granted a license to make coated book paper by the patented process of the Consolidated Water Power & Paper Co. of Wisconsin Rapids, Wis.

Thus in a period of only six months, announcement is made of the licensing of the on-the-machine Consolidated system of coating for magazine or book paper by companies 3,000 miles apart — in the extreme Far West and the "Down East" regions of the United States.

Just six months ago PULP & PAPER INDUSTRY (July, 1945) announced Crown Zellerbach Corp.'s $15,000,000 expansion program,which included the adaption of the Consolidated process to two book paper machines at West Linn, Oregon, one entirely new and the other being rebuilt.

John N. Hinman, president of International Paper Co., has announced that similar new equipment is now being installed at the Palmer mill and, in both cases, production will begin in early 1947.

As previously reported in these columns, under this process a preworked coating film is applied to a continuous web of paper in the paper's course of travel on the machine.

George Mead, president of Consolidated Water Power & Paper Co., envisioned the great future for this system over ten years ago, a time when the publishing industry was just beginning to develop high speed, rotary, heatset presses for printing. This was a challenge to the paper industry to develop a faster and more productive method of coating paper than by the traditional brush-coating systems.

Names listed under the Consolidated patents for its coating process reveal the names of the men who worked with Mr. Mead in this development a decade ago—Peter J. Massey, now manager of H. P. Smith Paper Co., Chicago; Gilbert K. Dickerman, the technical director; William F. Thiele, the chief engineer;Howard B. Richmond, paper mill superintendent; and Bert F. Raprager, superintendent of paper machines.

GEORGE W. MEAD, President of Consolidated Water Power & Paper Co., who foresaw future need for high speed production of coated papers and directed development of process at Wisconsin Rapids. Now Crown Zellerbach in west, International Paper Co. in east are among few companies in different regions of world licensed to make coated paper by this method.

Mr. Mead, former Latin teacher, born in Rockford, Ill., pioneered use of electricity in paper mill machine drives and several other developments now widely used in the industry.

History of Patents

The first company ever licensed under these patents was Edward Lloyd, Ltd., in England, back in 1935, and it has continued to produce coated paper under its agreement. The Consolidated process has also been licensed in the other principal foreign countries.

Mr. Dickerman, on his recent trip to Europe for the Allied General Staff, to look into German paper industry developments, had time also to visit the companies which were using or planning to use the Consolidated system. These included the famous Star Paper Co. of England.

The licensing of book paper production by the Consolidated patents should not be confused with other licensing for coating of waxing paper, board, etc. Also in Canada there is a Consolidated licensee, the Provincial Paper Co.

Dunn Sulphite Paper Co. is licensed by Consolidated for production of coated bread wrap and Crown Zellerbach for some years has had license from Consolidated to coat waxed paper at its Camas, Wash., mill.

Consolidated's Expansion

Today, Consolidated, even with its tremendous expansion projects at its new Wisconsin River division, where two former news machines are being converted to coated book paper, and at its Biron mill, where one machine is being added, is unable to meet the huge paper requirements of the big mass circulation magazines.

When these projects are completed during 1946, Consolidated will have nine machines at three mills along the Wisconsin River, making coated book paper. These include four machines at Wisconsin Rapids, two at Wisconsin River and three at Biron. This will be only a portion—a large one but not large as comparted with the nationwide output—of what the magazines want.

Six new dryers on each machine at Consolidated's new Wisconsin

SOME OF THE PRODUCTS REQUIRING SULPHUR

ACIDS	LUBRICANTS
CHEMICALS	MATCHES
CLEANING FLUIDS	MEDICINE
DRUGS	PAINTS
DYESTUFFS	PAPER
EXPLOSIVES	PETROLEUM PRODUCTS
FABRICS	PLASTICS
FERTILIZERS	PROCESSED FOODS
FILM	REFINED METALS
FOOD PRESERVATIVES	REFRIGERANTS
FUMIGANTS	RESINS
FUNGICIDES	RUBBER
GASOLINE	SYNTHETIC RUBBER
GLASS	SOAP
GLUE	SODA
GLYCERIN	SOLVENTS
INSECTICIDES	STEEL
KEROSENE	SUGAR
LEATHER	TEXTILES

Sulphur is serving the rubber industry—from the manufacture of rayon threads to vulcanization—making the tires for travel over the country's highways—manufacturing rubber for countless uses in homes and industry.

Sulphur has an important role in the preparation of both natural and synthetic rubber. In the form of Sulphuric acid, it coagulates the synthetic rubber from soap suspension solutions. Moreover, it is essential in the vulcanization of both natural and synthetic rubber.

The manufacture of rubber is but one of the many ways in which this invaluable mineral is aiding industry. Freeport's supply of this essential product is sufficient to fill all anticipated needs and underground reserves combined with modern mining methods assure a dependable and continuing supply.

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SULPHUR SERVES INDUSTRY

HERE ARE SOME OF KEY MEN OF CONSOLIDATED WATER POWER & PAPER CO., who cooperated in development of its on-the-machine coating process and who may now take pride in its expanded use and important success in meeting rapidly-growing needs of magazine world for high speed production of coated papers. Left to right: STANTON W. MEAD, Vice President, Treasurer and Director of Mfg., and son of the President (Stanton Mead has also contributed much of his time to aiding the industry in general in meeting critical pulpwood supply problems).

HOWARD RICHMOND, Paper Mill Supt., Wisconsin Rapids Div., whose grandfather built first mill in Wisconsin on site of the Interlake Div. in Appleton.

JOHN SCHNABEL, Gen. Purchasing Agent, oldest employe, started work at Biron when it was just a sawmill.

GILBERT K. DICKERMAN, Technical Director, with Consolidated 17 years, a Princeton University graduate.

EARL (Mickey) McCOURT, Coordinator of Production and Sales, who is contact man with many big publisher customers and who served War Production Board in Printing and Pub. Division. He is native of Wisconsin, went to Lawrence College, joined Consolidated in 1921.

W. F. THIELE, Chief Engineer for all mills; been with Consolidated 25 years and for eight years previously traveled to Wisconsin mills for General Electric.

(All pictures by PULP & PAPER INDUSTRY. The other Vice President of the Company, WALTER L. MEAD, also son of the President, was in Chicago, where he has permanent offices as Director of Sales, and his picture could not be obtained at the time these were taken).

River division are being made by Rice, Barton Corp. At Biron the entire machine is being built by Rice, Barton.

Calender rolls for super calenders are being made for Consolidated by Appleton Machine Co. and rewinders for the new or converted machines by Cameron Machine Co.

Crown Zellerbach Corp.

Contracts were let Dec. 31, by Crown Zellerbach Corp. in the office of Frank N. Youngman, vice president in Portland, for building construction in excess of $1,000,000 for the new and enlarged plant of the Crown Zellerbach mill at West Linn.

Lee Hawley Hoffman, contractor, Portland, was the successful bidder and he announced plans for starting work at once on the construction of the buildings, the foundations having been more than half completed. The work will bring a weekly payroll of $15,000 or more to the community for the next year.

The buildings to be started are:

New mill F replacing the present mill F, a 3-story reinforced concrete and steel structure, 180 by 275 feet.

Bleach plant, 5-story reinforced concrete and steel, 82 by 106 feet.

Coating mill, for magazine paper, 5-story reinforced concrete and steel, 92 by 103 feet.

Remodeling of present mill D, 3-story, 92 by 161 feet.

Beloit Iron Works, which has done and is still doing a large portion of the work on coated book machines, is converting one machine and building another entirely new one for Crown Zellerbach at West Linn. Appleton Machine Co. is fabricator of the calender rolls and rewinders are to be supplied by Cameron Machine Co.

Half of the production at West Linn by Crown Zellerbach Corp. will go to Time-Life and the other half to the Saturday Evening Post and other Curtis Publishing Co. magazines. A new pioneering development is planned by Time-Life in connection with the use of this paper as it is intended to be used for western circulations, which will be published in Los Angeles simultaneous with the publication of the eastern editions. Thus, for the first time, the greatly increased Pacific Coast populations will no longer have to wait two or three days later than eastern readers to get these magazines.

So far, there have been no indications that other big magazines will follow this lead very soon but eventually it is believed inevitable that more of this printing will be done in the west.

International Paper Co.

The machine work to be done for International Paper Co. in readying the Palmer mill for on-the-machine coated book paper will follow similar lines to that being undertaken at the Consolidated and Crown Z mills.

International, like many other companies in the field, is a supplier for the Time-Life magazine group, but Mr. Hinman said its coated paper will go into catalogues and commercial printing as well as magazines.

Paul A. Mahoney, sales manager of the groundwood specialties division of I. P. Co., said there will be increased production of bleached groundwood paper by his company. This increase in groundwood output, combined with the agreement with Consolidated, he said, will enable International to serve printing and converting trades more completely.

O. B. Beyer is manager of the mill at Palmer, which is near Glens Falls, N. Y., and in the midst of an important concentration of Upper Hudson River paper mills. About a dozen mills are within a radius of 10-15 miles in this region.

The sulfite superintendent at Palmer is Vance Edwardes, who is national president of TAPPI.

The mill now has seven Fourdrinier machines ranging in width (trim paper size) from 73 to 141 inches. It has also a 73-inch trim cylinder machine. It has a separate coating mill with a 100-inch high speed coater. The Consolidated system will provide it with its first on-the-machine coating.

Groundwood pulp, capacity of 196 tons a day, and sulfite pulp, 135 tons and bleached sulfite, 30 tons, are produced at this mill. The daily capacity for paper was listed as 325 tons, with 25 tons additional of wrapping and core.

Time Table

Here is the "time table" for completion of these projects—and for the big magazines, out signing up advertising contracts now on the prospect of this future supply—they will materialize none too soon:

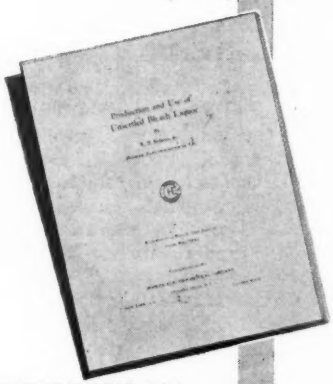
Wisconsin River—Spring of 1946.
Addition at Biron—End of 1946.
West Linn—Spring of 1947.
Palmer, N. Y.—Early 1947.

Have You Investigated the Economies of Unsettled Bleach Liquor

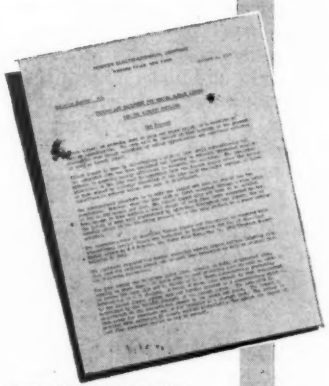
ARMY E NAVY

ARE YOU prepared to meet the new demands for increased brightness of your papers—and do it at a reasonable cost? The use of unsettled bleach liquor is showing the way in many mills to new economies in bleaching, through the elimination of long settling periods, sludge washing, large storage facilities and high labor costs.

The pros and cons of unsettled bleach liquor are summarized in Hooker Bulletin 242. This Bulletin together with Bulletin 201 clearly presents the economies of its use, the operating procedure, required equipment and the approximate costs for the installation. Copies of both these Bulletins will be sent you free when requested on your letterhead. Members of Hooker's Technical staff, who have been instrumental in many of the advances in the pulp and paper industry are ready to advise and work with you in bringing your peacetime plans to realization.



BULLETIN 242



BULLETIN 201

HOOKER ELECTROCHEMICAL COMPANY

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HOOKER CHEMICALS

Caustic Soda Chlorine Muriatic Acid
Sodium Sulfide Bleaching Powder

8437

"PUSH-PULL" CAMPAIGN FOR WOODS LABOR--WILL IT WORK?

A new U. S. Pulpwood Council with headquarters at 30 Rockefeller Plaza, New York (20)—phone number, Circle 7-1484—has been organized to direct a campaign to get labor back in the woods.

On its success may depend all the elaborate publication programs of new or bigger magazines, the ability of newspapers to carry on with their plans and perhaps for some, to just exist, and extensive plans in many other industries for using paper for packaging and other purposes.

The U. S. Employment Service in 23 states and the pulp and paper industry are teaming up in a campaign which is employing what the leaders call a "Push-Pull" technique.

The project is to "push" discharged service men or war workers out of crowded metropolitan areas by offering "steady jobs" and "good pay" in the woods, and simultaneously to "pull" others back to rural homes by stressing advantages of country life from standpoints of health, raising children, etc.

The "push" campaign is being waged in paid ads in 150 metropolitan dailies and the "pull" campaign in 900 weeklies. Illustrated pamphlets, posters and the radio will also be used.

J. CLIFF MARVIN, who has become a Partner of Bulkley, Dunton & Co.
His admission to this position is announced by J. O. Bulkley, senior partner of the company.

Mr. Marvin, who started his career in his former home town of Minneapolis, where he was Vice President of Newhouse Co., joined Bulkley, Dunton in 1942 as head of the Merchandising Division. During this comparatively short time has distinguished himself as an organizer and executive. The company's operations in fine paper were greatly expanded under him.

JAMES L. MADDEN, President of Hollingsworth & Whitney Co., who is again "drafted" to lead the pulp and paper industry in its crucial campaign for pulpwood.

He heads new U. S. Pulpwood Council. In war years, he directed similar drive for the industry and government as Chief of Pulpwood Production in WPB.

Some industry leaders, questioned by PULP & PAPER INDUSTRY, are wondering if this kind of a campaign is going to have enough "oomph" to woo 25,000 needed workers into the woods.

They point out that the power of wartime slogans—winning the war or helping the war effort—can no longer be invoked.

However, this "push-pull" campaign seems to be the best idea brought forth in a series of consultations among the industry leaders and unless someone comes up with a better one, it will be continued.

It was generally agreed by industry executives in the South, East and West that anyone who has any worthwhile ideas might pass them on to the Council. Some suggested that thought should be given to improving living conditions in the woods and setting up permanent communities, wherever this is possible.

One criticism of the campaign is that it is confined to the coastal states from Maine to Texas—along the Atlantic and Gulf Coasts—plus only Arkansas, Kentucky, Tennessee, West Virginia and three of the "old Northwest" states—Minnesota, Wisconsin and Michigan. No campaign is being waged in one of the big wood producing and surplus labor areas, the Far West, where just one mill, for example, has shown what can be done by organizing 100 independent farmers' small wood procurement operations.

Madden Heads Council

James L. Madden, youthful president of Hollingsworth & Whitney, who headed pulpwood production for the War Production Board during the most critical year for the paper industry — 1943 — has again been called upon by the industry to head this new and more difficult peace-time campaign as chairman of the U. S. Pulpwood Council.

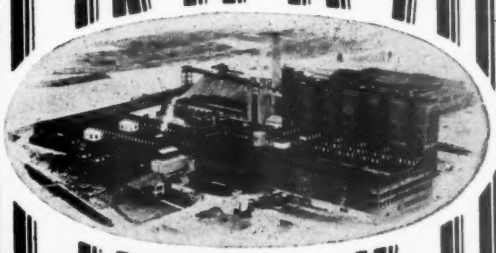
In taking up his new duties, Mr. Madden said:

"The need for more printing papers and other pulpwood products is every bit as great today as it was during the war," Madden continued. "While Army and Navy demands for pulpwood products have slackened, these cutbacks are being more than offset by the requirements of a civilian economy that has been short of paper for more than four years."

Frank Block, who served as director of the War Activities Committee of the Pulpwood Consuming Industries, will hold the same post with the U. S. Pulpwood Council. H. E. Brinckerhoff, executive-secretary and treasurer of the war-time committee, will continue in this capacity with the Council.

Members of the Council, in addition to Mr. Madden, are: William J. Bailey, vice president, West Virginia Pulp and Paper Co.; H. S. Daniels, vice president, Union Bag and Paper Corp.; John H. Hinman, president, International Paper Co.; Amor Hollingsworth, president, Penobscot Chemical Fibre Co.; R. W. Hovey, vice president, Oxford Paper Co.; H. M. Kieckhefer, vice president, North Carolina Pulp Co.; Peter S. Paine, president, New York and Pennsylvania Co.; Cola G. Parker, president, Kimberly - Clark Corp.; and Vertrees Young, executive vice president, Gaylord Container Corp.

SOUNDVIEW



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High Frequency Heating In Pulp and Paper Industry

By Remi Bollaert

Electrical Engineer, Westinghouse Electric Corp., San Francisco.

(Presented at TAPPI meeting, Seattle, Dec. 4.)

COMPLETE REPORT PRESENTED ON RESINS ROUND TABLE

Perhaps the most complete discussion of all possible practical applications of resins of all kinds to paper and pulp held anywhere in this industry took place in Seattle, December 4.

Beginning here and continuing to page 54, PULP & PAPER INDUSTRY completes the presentation of these papers, sponsored by the Pacific Coast section of TAPPI.

Two of the papers—"Melamine Resins for Wet Strength Chemical Paper," by K. E. Youngchild of Amrican Cyanamid & Chemical Corp., and "Use of Resins in Pulp and Paper," by James B. Hyde of the Central Technical Dept., Crown Zellerbach Corp.—were published last month (December) on pages 49-56.

Thus, in only two issues, PULP & PAPER INDUSTRY presents the complete report of this meeting for those who are interested in resin applications.

Repeatedly we are reminded of the part played by electronics in the winning of the war and the job it is going to do for us in industry and in our daily life.

One electronic process that has received a good share of the attention is the use of high frequency alternating electricity in the heating of various materials.

The process is given many names: radio frequency heating, electronic heating, diathermic heating, and high frequency heating. All of these terms are synonymous and refer simply to the use of high frequency alternating current to generate heat in certain materials. This process is not something revolutionary that is to replace all other heating methods. It is, instead, a supplement to the existing ways for producing heat. In some applications it will have advantages over steam or gas or conventional electric heat. In others the conventional method will continue to be the desirable one.

There is still much to be learned about the details and processes in your industry. However, I want to tell you how it is done and what it can accomplish, and let your imagination select the possible applications in your activities.

Induction Heating

High frequency alternating current can be used in two separate and distinct ways to heat materials. One we call induction heating. We form a coil of several turns of copper wire and pass high frequency current through it. Then we place the material to be heated within the coil. For the current that flows in the coil, a corresponding current flows in the material. This latter current causes the material to heat. Evidently, if current is to flow in the material being heated, it must be an electrical conductor—a metal. Hence the use of the induction method is restricted to metals and the applications of this process will be very limited in the pulp and paper industry.

Dielectric Heating

The second way in which high frequency electricity can be used to heat materials is called dielectric heating. We prepare two plates of copper and between them we place the material to be heated. Then we apply high frequency high voltage alternating electricity to the copper plates. At one instant the top plate is positive electrically and the high electrical stress in the work distorts the atoms or molecules in one direction. On the next electrical alternation, the lower plate is positive and the atoms are distorted in the other direction. If this is repeated rapidly, the atomic or molecular friction results in heat. This would indicate that higher frequencies will generate more heat—and that is exactly right.

If the material sandwiched between the plates is to sustain high voltage, it must be an insulator—paper, wood, resin, rubber, glass, and so forth. This process then should find applications in the paper and pulp industry. This is particularly true where resins are involved, since most resins require heat for curing.

Let me now point out the qualities of this heating method—the advantages and disadvantages.

First, since the heat is generated within the material itself, it is unnecessary to place the work in an oven or bring it in contact with hot bodies to heat it. The only sensible heat associated with the job is that which is radiated or lost from the work. On the other hand, the work must lie between the plates which we call electrodes. These electrodes are of relatively high electrical potential and must be surrounded by a cage to protect the operator.

Second, the heat is generated uniformly in the work. This means that thick sections can be heated as rapidly as thin ones. It is not necessary to wait for heat to be conducted to the center of the mass. The heat is formed at the center as well as at the surface.

Third, the work need not be touched. There may be a space between the electrodes and the work. Therefore, the material that is being heated may move between the electrodes as on a conveyor. However, the spacing must not be too great. The effectiveness of the process decreases with large spaces between the electrodes and the work.

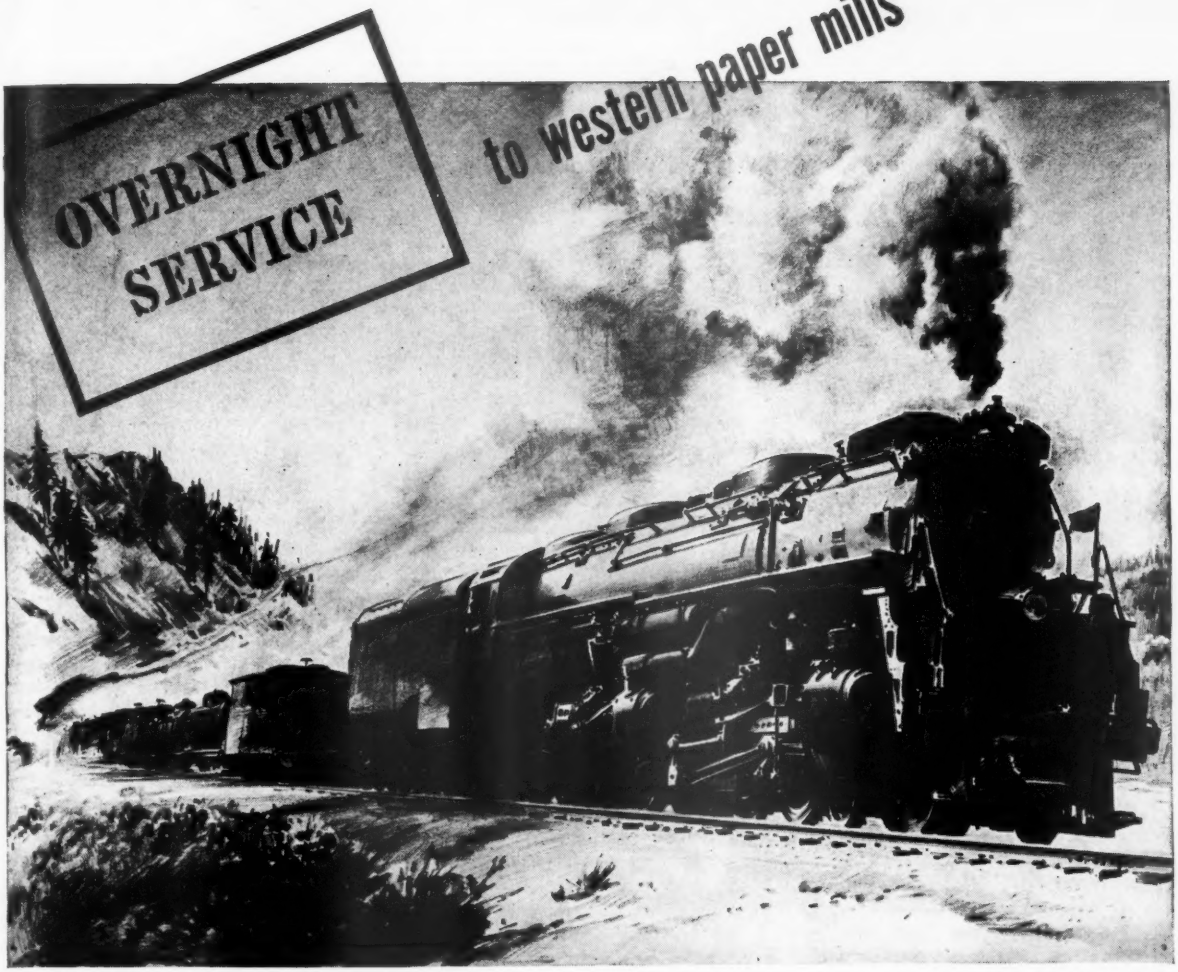
Fourth, for uniformity of heating, the cross-section of the material should be uniform. Although materials of irregular thickness can be heated, the technical complication usually makes such applications impractical.

Control Factors

The amount of heat that can be put into any piece of material depends on three factors—the frequency, the voltage, and a figure we call loss factor.

We use frequencies in the range from 1,500,000 cycles per second to 100,000,000 c.p.s. To put this on more familiar ground, I might point out that our common power supply frequency is 60 cycles per second and the electrical frequencies used for radio broadcasting lie in the range from 500,000 to 1,500,000 cycles per second. The amount of power we put into the work increases directly with the frequency.

Voltage is the second factor that determines the amount of power input. We use voltages from less than 1000 to about 5000 volts per inch of material thickness. Porous and moist materials can stand only the lower



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values. Dense dry materials can withstand the higher voltages. Paper is intermediate; it can stand, say 2000 to 3000 volts per inch under normal conditions and 3000 to 5000 when very dry. The voltage is doubly effective in determining the power. The power increases as the square of the voltage; doubling the voltage increases the power fourfold.

The "loss factor" is an inherent property of the material being heated. It is the electrical nature of the material. Moist wood has a high loss factor and heats easily. Porcelain has a low loss factor and is difficult to heat. The loss factor of any material can be measured with the proper electrical instruments. In the whole range of dielectric materials, papers and resins have moderate loss factors. The values are in the range from .02 to .2 approximately. The power put into the work is directly proportional to the loss factor.

The foregoing three factors can be set down in a simple equation that says that the power in watts that we put into a cubic inch of material is proportional to the loss factor, the frequency (expressed in millions of cycles per second), and the square of the voltage (expressed in kilovolts per inch of thickness.) For these units the constant of proportionality is 1.41, so

$$\text{Power} = 1.41 \times (\text{loss factor}) \times (\text{frequency}) \times (\text{voltage})^2$$

watts per cubic inch

Let us see how much power we can put into a representative paper material. Let us select a paper that has a loss factor of 0.1 and let us use a moderately high frequency of 30 million cycles per second. If the paper is reasonably dry, it can withstand 3 thousand volts per inch. Then, the power is $1.41 \times 0.1 \times 30 \times (3)^2$ or 38 watts per cubic inch. This is equal to about 2.2 BTU per minute per cubic inch. This amount of heat will raise the temperature of paper at a rate somewhat greater than 100 degrees per minute. Depending on the nature of the material, power rates of a fraction of a BTU to 10 or more BTU per minute per cubic inch are possible.

How to Use It

I said at the outset that there is still much to be learned about the details and processes in your industry. Where and how will you use high frequency heating? Perhaps in some of the following ways:

First, since the heat is formed in the material, it is a natural method for thick sections, perhaps multilayer paper or composition boards

OSCAR OGREN, whose appointment as salesman of groundwood papers to periodicals for Minnesota & Ontario Paper Co. is announced by Rondeau A. Warner, Sales Mgr. of Paper Div.

Mr. Ogren joined M. & O. in 1917 and after serving in World War I, was finishing room foreman, chief order clerk, chief paper sales clerk and salesman.

FRANK J. LOVEGREN, Carpenter's Mate 3rd, USNR, who has ended over two years in U. S. Navy, including service at Adak, Alaska, and is returning to pulp and paper industry. He was Chief Chemist and Personnel Director at Inland Empire Paper Co., Spokane (Millwood), Wash., before entering service.

where the heat is required for glue setting. This application comes to my mind because the dielectric heating method has proved successful for bonding thick sections of plywood. Paper and wood behave very similarly in the dielectric field.

Dielectric heating of plastic preforms is extensively used. Molding materials consisting of pulp and resin mixtures come under this classification. Considerable time is saved by preheating these materials preparatory to the molding operation.

Another application that has proved successful is the dielectric bonding of so-called laminated plastics such as the well-known Micarta. I have here a sample section cut from a piece of dielectrically bonded Micarta 10 inches thick. It can be noted that the heating has been uniform as indicated by the uniformity of color and the solid bond. The fact that the resin has squeezed out at all points along the edge also indicates complete heating. When dielectric heat is used in the preparation of Micarta, heated plattens are still used—but only to prevent excessive heat loss from the work.

Drying is a difficult problem. The evaporation of water requires 970 BTU per lb. and in most drying problems the heat energy required is excessive. For example, suppose the paper of our previous discussion is to have its moisture content reduced 15%. Then the weight of water to be removed is about .005 lbs. per cubic inch. To evaporate this water would require $.005 \times 970$ or about 4.8 BTU. But we can put only 2.2 BTU per mniute into each cubic inch, and therefore we must apply power for more than two minutes.

If this paper were in the form of a sheet moving 500 ft. per minute, we would require an electrode more than 1,000 feet long. This, of course, is ridiculous. To attempt to increase the heating rate would require increasing the voltage or the frequency. Both of these are limited by practical considerations.

The high frequency energy used for this heating method is obtained from electronic generators. These are available in sizes from 2 KW to more than 100 KW. The cost of such a generator is relatively high and therefore the use of high frequency energy for heating must be justified by an economic study. It has been found that the total cost of operating an installation of this kind, including an allowance for amortization of the equipment and based on power cost of 1c per KWH will run from about 3½c to 8c per kilowatt hour of high frequency energy. The low figure would apply to large installations and the 8c figure would more nearly fit small systems. The qualities that frequently make dielectric heating practical in spite of cost of the process are: greatly improved product quality, increased speed of production or reduction in labor cost.

(The talk was concluded with a demonstration of dielectric heating of paper products.)

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PULP MOULDING

By Arthur J. Norton
Consulting Chemist, Seattle, Wash.
(Paper presented at TAPPI meeting, in Seattle, Dec. 4)

By "pulp molding" is meant a new process for the production of fiber-filled plastic articles. This process is evolving from the application of the old art of pulp forming to the newer art of plastic molding.

In brief, pulp or fiber slurries in water are preformed to approximately the shape of the finished article by sucking onto a formed screen by vacuum, or by forcing the slurry through a formed screen by pressure. The synthetic resin is either incorporated into the fiber in the slurry before preforming or a solution of the resin is sucked through the preformed fibers. The preformed resin-fiber mixture is then dried and molded or compressed to a finished article by conventional molding methods.

From even this brief description it is easy to visualize the adaptability of the process to the production of large plastic objects — larger than are practical by any conventional molding techniques.

$60 to $2,000 a Ton

It is also obvious that the process is adaptable to making molded objects in price ranges between the present $60 to $100 a ton for molded egg boxes or pie plates and the $1000 to $2000 a ton for standard molded plastic articles. For example, a thin preform of kraft fiber with 50%-55% by weight of resin can be sucked on the screen, followed by a thicker core made of ground wood with perhaps only 20%-25% resin and then followed with another surface coat of better fiber and higher resin, giving a good final molded article at considerable lower than standard material cost.

The third advantage — and this advantage is often stressed as an inherent property of pulp molded articles — is the ability to develop more nearly the full possible strength of fiber-resin combinations. A preformed article — such as a resin-fiber preform — requires little flow to compress it to a dense "plastic" product. When fibers such as pulp, or cotton flock, or tire cord are incorporated into resin as a molding material, they are chopped up into usable sizes, and depend on their flow or plasticity under heat and pressure to form the finished article.

ARTHUR J. "Jerry" NORTON, Consulting Chemist, 2919 First Ave. So., Seattle, Wash., the author. Mr. Norton moved his own laboratory west from Portland, Maine, in 1943. He had operated his business in Maine for five years, following ten years as Chief Chemist for Durez Plastics & Chemical Co., North Tonawanda, N. Y.

More resin has to be used to get this flowing characteristic than is desirable in developing strength.

As an example, it is well known that a phenol-aldehyde wood flour molding powder with 35% resin content will give a higher impact strength than one with 50%-55%, other things being equal. But such a compound is not suitable for molding at standard pressures as it will not flow well and fill the mold.

With every filler there is an optimum amount of resin to reach the maximum strength, and in practically all cases this lies below the point of optimum flow, so that strength in conventional molding is sacrificed for usability. Fiber orientation is also important in developing optimum strengths, and both the resin content and fiber orientation are controllable in pulp molding.

"Pulp molding" can evolve into a process for making stronger and larger plastic articles, and is adaptable to molding a new class of articles in an intermediate price range.

Review of Processes

Since the finished products made by pulp molding are essentially "plastic" articles, it might be well to review briefly the development of the plastic industry and to stress the various processes in vogue which are somewhat competitive with pulp molding.

Plastic products often are used for their weight-strength ratios, and the demand has constantly been for improved strengths — particularly impact.

The first efforts to improve the impact strength was through the incorporation of fibers. The chemical research on improving the inherent strengths of the resins has not been neglected, but appears to be a very difficult problem involving the physical chemical inner orientation of the molecules as well as straight chemical research on the nature of the resins. Standard molding materials have wood flour filler. Improved impact strength is obtained with cotton flock and again with chopped cloth or tire cord. Strengths of the latter type approach the strengths obtained by pulp molding, but the products are bulky, difficult to distribute evenly in a large mold and are difficult to mold, i. e., to flow out uniformly. Transfer molding, where these bulky materials are preformed into biscuits, preheated generally by electronics and then forced into a closed mold by pressure, has made it possible to mold such products as gun stocks successfully. In thinner walled articles it is more difficult to get uniform distribution and the resin content again has to be higher than that which gives optimum strength.

While research on molding powders was progressing, another approach to strength was the development of the lamination of paper impregnated with resin and later the lamination of cloth. Here many of the strength requirements can be met. Fiber orientation is controlled and the resin content of the core can be held at a minimum. The treatment or impregnation of finished paper with resins has been moderately expensive, however, and the laminations were until recently, limited to relatively flat shapes, for drawing of thin paper sheets tore the fibers.

Just previous to the war a double creped paper was put on the market. This paper impregnated with resin would "flow" around sharp corners

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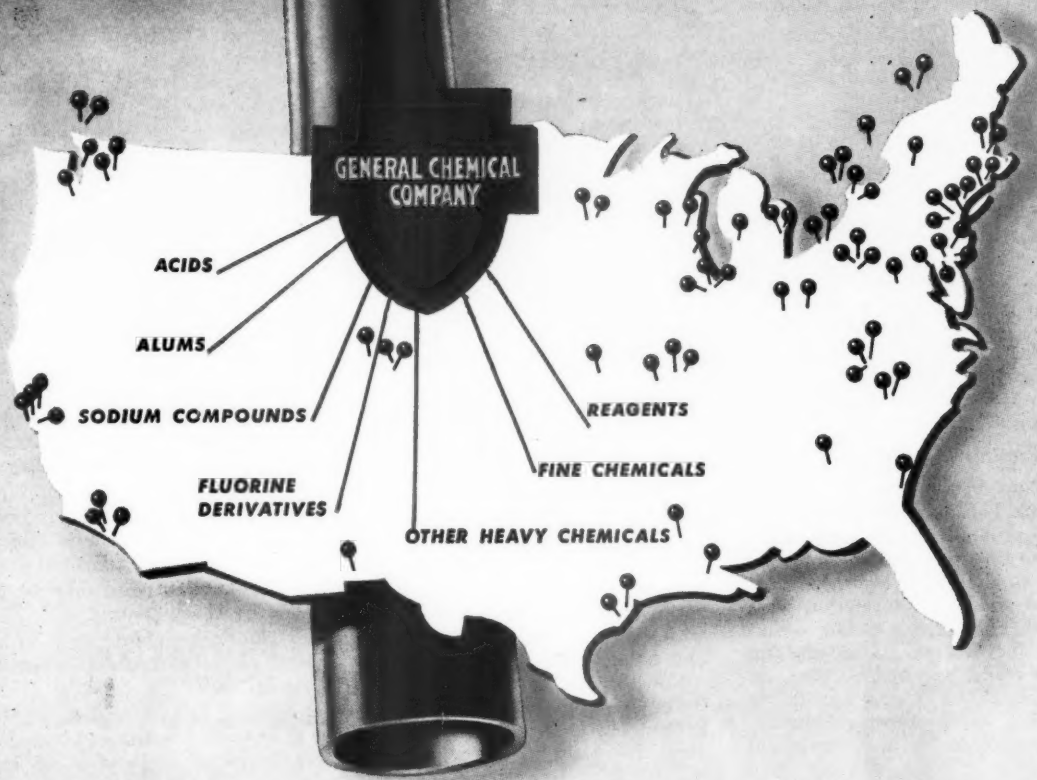

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because of its inherent "three way stretch." It will continue to find a use in molding of strong articles, but the double creping operation on a good paper and the impregnation make a relatively expensive product.

During the war the demand for strong and large moldings stimulated the post forming of laminated sheet stock. In most laminating work resins that do not set or cure as thoroughly as those used in molding have been used to prevent shrinkage cracking of the large sheets. These semi-cured but homogeneous sheets were heated and drawn to rather complex forms. Here again the starting cost is very high.

Low pressure laminating was another attack on the problem of producing large plastic articles of high strength during the war. Resin impregnated paper or cloth was cut to shapes and laid over forms and then cured by pressure from a rubber bag. Many modifications of this process were used successfully and a new series of resins were introduced for this purpose. In competitive markets, this process will also have to receive many modifications to get costs in line.

Pulp Forming Methods

Pulp forming methods, in the meantime, had improved vastly over the old original paper mache articles. The screens or grids were improved so that very even distribution and good fiber formation were obtained. It became possible to distribute the fiber so that uniform sections could be obtained even on deep draws. Die drying was introduced, i. e., the preform was sucked as dry as possible on the screen and then transferred to a mold. One side of the mold was smooth and heated. The other side had slots or orifices leading to a vacuum chamber so that the pulp article was quickly dried and "calendered" or pressed to a finished article. Cheap thermoplastic materials like asphalt were introduced and large pieces molded, which served as glove compartments and liners for trunks, etc., in the automotive field.

So it is obvious that, even at the present time none of the other methods of molding large strong articles are entirely satisfactory and the pulp molding process is the only one that holds real promise in this field.

It was about 1928 that some of the first efforts to incorporate synthetic resins into pulp forming was tried. The process offered few advantages, if any, for small objects and at that time there were no presses available — and no apparent demand for large objects. So it was not until about 1938 that any real progress was made in the pulp molding field.

Two firms started in commercial production at that time — one using emulsion dispersion of the resin with the fiber, the other impregnating the formed preform with a resin solution. One firm specialized in high strength articles, the other in products of the intermediate price class. Both have been quite successful, but both had had previous pulp forming experience.

Unfortunately, there is not, to date, any standard methods or equipment for pulp molding. Each object is an experimental problem and only a few generalities can be made, and those with some trepidation.

In the first place it is quite positive that the hydrolysis of the fiber and the normal bonding of the fibers as in paper plays almost no part in the bonding of a pulp molded article. In fact, too much beating of the fiber causes it to lose its freeness and consequently to be slower of pick up on the screens and harder to disperse satisfactorily.

Second, the process is not limited to paper pulp fibers but most any fiber capable of being held in a uniform slurry may be used.

Third, if the resin is introduced into the slurry either in a beater or in a high speed agitator, a closed system must be maintained and a loss of at least 6% to 8% of the resin generally results when the white waters finally become fouled and have to be discarded.

Fourth, the drying of the preforms before molding has to be done at temperatures low enough not to cure the resin, i. e., at 180°F or thereabouts. This is slow and the shrinkage of the preform is hard to predict and to allow for in the original molding or forming of the preform.

Fifth, die drying and curing of the preform can be done simultaneously on pieces where slot or screen marks are acceptable and where high pressures are not necessary.

Sixth, some pieces can be molded at low pressures, others require the full 2000 lbs./sq. in. that is standard for plastic materials. The pressure required depends on the type of fiber, the type and amount of resin, the amount of moisture allowable and the density required in the finished piece.

Seventh, a high resin surface of colored resins may be applied to the dry preform before molding by spraying.

Utilization of Resins

In practice the beaten pulp or fibers are held in dispersion in deep containers by rapid agitation. The concentration of fibers or fibers and resin varies but generally ranges from 1% to 3%. The resin used in this case is water insoluble and may either be actually on the fiber or in mechanical dispersion with the fibers.

The formed screen is immersed in the slurry for a definite length of time with suction — the time regulating the thickness of the mat or preform. The preform has to be designed to allow for shrinkage during drying unless die drying is employed. As a rule this dipping, sucking to about 50% moisture content and transfer of the preform to the drying chamber or drying die is all automatic. If the resin is introduced by impregnation, the preform is dipped into a resin solution before removed from the screen.

A wider variety of resins can be used in this procedure as they may be water soluble. The surplus is merely recycled and the concentration increased to take into account the displaced water.

The screens and die drying molds are generally brass or bronze, although some aluminum alloys have been used.

Drying on shrink plugs or forms to prevent distortion is often done when oven drying is used.

The surface resin may be put on last by spray coating.

The final molding may be by any one of the standard plastic molding techniques.

Every phase touched on here — the types of resins, of fiber, the concentrations and types of slurries, the type of forming screen and the art of designing the preforming screen, die curing and drying, and molding itself is a subject all its own on which a full evening would not be too much time to spend.

I do hope, however, to have given a general picture of pulp molding and to have emphasized that it alone offers the opportunity of molding large plastic articles of good strength and at a reasonable price. But I hope I also conveyed that the industry is very much in the development stage at present.

Fibreboard Chemists Meet

In attendance for annual three-day meeting of Pacific Coast chemists of Fibreboard Products, Inc., in Stockton, Calif., recently were B. F. Brown, Jr., of Vernon, R. O. Holcomb of Port Angeles, E. A. O'Connor and E. C. Jennings of Antioch, R. W. Vaughan of Sumner, and R. G. Beauregard, T. S. Markov, H. L. Rammer and Walter Tilcock of Stockton.

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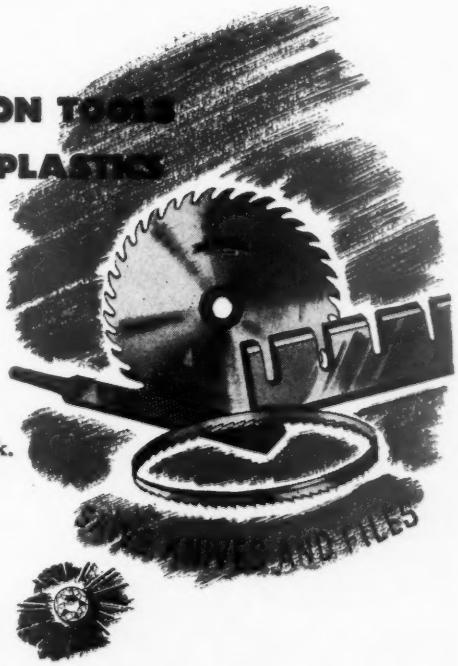

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LAMINATES AND OVERLAYS

By D. V. Redfern

Chief Chemist, Adhesive Products Co., Seattle

(Paper presented at TAPPI meeting, Seattle, Dec. 4)

In order to avoid confusion with a dictionary definition that is outmoded the following will be considered the proper definition of a laminate: A laminate is any object consisting of layers of material bonded together to form a new and useful product with definite characteristics imparted from its separate lamina whether they be heterogeneous or homogeneous; also with the qualification that the final material can be either homogeneous as in the case of high pressure laminates or heterogeneous as is the case of laminates made at lower pressures. Overlays may be considered laminates.

A study of laminates and overlays divides itself into three main headings with specific problems connected with each.

High Pressure Laminates

High pressure laminates involve the pressing of resin-impregnated sheet stock at pressures from 1000-3000 psi, utilizing, due to tremendous pressures required, unidirectional or platen pressure. The type of laminate derived depends on the pressure used in this range, the type of paper stock, and the characteristics of the resin used for the impregnation.

Papers used for high pressure groupings depend on the qualities required in the finished material. Rag papers give good mechanical and electrical properties to the laminate. The high wet strength imparts good mechanical properties and good moisture resistance and enhances the electrical properties of the laminate. Alpha papers give excellent color possibilities and electrical properties. Also due to the intermediate cost of the paper it is the leader in volume used for high pressure laminates.

Kraft paper laminates with their low cost, as compared to the other papers and their good resin-saturating properties exhibit fair electrical properties and good mechanical properties and their use is increasing in high pressure laminates made for structural purposes.

Due to the shortage of metals for construction during the war, emphasis was placed on developing suitable paper-based laminates for materials of construction. The U. S. Forest Products Laboratory in cooperation with Consolidated Water Power and Paper Co. came up with increased strength from Mitscherlich spruce sulfite paper. It has been known that this process provided a pulp that gained rapidly in tensile strength in the beater, giving a sheet with the required characteristics for making a high strength product.

One of the important single factors involved in producing a good paper is its saturation property or ability to absorb the resin. This factor of absorptivity is interdependent with the specific gravity of the sheet and the type of resin. Because of the strength-imparting characteristics of the paper it is important to keep the percentage of fiber to resin as high as possible, commensurate with keeping the required moisture absorption qualities. To obtain satisfactory resin impregnation the sheet must be extremely uniform across its surface.

Low Pressure Laminates

Low pressure laminates involve the pressing of materials from 50-300 pounds per square inch. The advantages of low pressure over high pressure laminates are obvious from a cost standpoint. The equipment involved in low pressure laminating is less expensive. Possibilities in design are much greater. Whereas the high pressures in laminating require that one keep to easily-formed shapes such as flat sheets and tubes, low pressure lamination allows the use of intricate shapes due to the fact that molds can be designed for applying pressure in any direction. Bag molding is an interesting example of this.

Due to the research applied in developing higher strength papers with better wet strength and the increased knowledge of resins, the low pressure laminates approach and in some cases surpass the high pressure laminates in mechanical and electrical properties. Because of the low pressures involved heterogeneous objects can be fabricated using this technique especially where one or more of the members may be crushed by higher pressures. Overlay plywood is a perfect example of this. The low-pressure laminates use the same paper types as the high-pressure laminates plus the fact that pulp stock impregnated with a low resin content can be utilized in producing some of the combinations that result from the low pressure technique.

Contact Pressure Laminates

Due largely to improvements in resins, contact pressure or pressures from 0-50 psi, are being used in forming laminates. Commercially, not too much work has been done on these but in general the papers are saturated with a monomer-type resin that is catalyzed in situ by an oxidizing agent to the high polymer. This type will certainly increase in usage due again to a lower cost of equipment and increased complexity of mold shapes.

Advantages of Paper

The obvious reason for using paper as a base for laminates rather than cotton cloth, glass fibers, asbestos fibers, and other materials is its cheapness and uniformity. When special properties need to be imparted to a structural piece or a decorative object then price does not bear so much weight. However, knowing that the amount of research done so far on paper as a base for laminates is only a drop in the bucket it is safe to say that we can only look toward an increased usage of paper in the laminates so far described.

The normal, uninflated pre-war usage of paper was about 80% of total production. This represented roughly 14,000 tons of paper annually. This may not be a tremendous tonnage as far as production is concerned but is certainly a good starting point for a larger industrial usage. Also, the papers used represent the higher grades produced. Closer cooperation among the paper industry, other industries capable of utilizing paper in their laminates, the synthetic resin industry, and those engaged in producing the final finished materials is necessary if this increased volume is to result.

Types of Resins

Resins used for the impregnant can be broken down roughly into three groupings: By far the most important are the thermosetting resins. In turn, phenolic resins due to their versatility, low cost, and good electrical and mechanical properties lead the parade. When

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color and decorative effect is of the utmost importance then urea and melamine resins serve the purpose. High pressure and low pressure laminates utilize this thermosetting group of resins. The advancements in the formulation of thermosetting resins, especially the phenolics, has immeasurably helped in the production of the low pressure laminates that were so successful as metal replacements during the war. The excellent penetrative powers of these resins also is an aid in their widespread use.

Thermoplastic resins are used to a slight extent, generally speaking, due to their high molecular weight and high viscosity, they are difficult to use. Special uses for these resins are being developed and at the present time it is safe to say that they will play a part in the future. More recently, manufacturers of cellulose resins such as cellulose acetate and ethyl cellulose have been doing investigational work along this line. It is stated that a definite advantage of thermoplastic lamintes is their ability to take a deep draw in forming operations. Another distinct advantage is the propeı ty of cellulose acetate for taking a wide range of colors.

The newest members of the resin family to become available are the monomer types. Due to their low viscosity and excellent properties for penetrating fibrous materials they have made a place for themselves. Because no solvent is used and the fact that they polymerize with no weight loss they have made possible the contact type of laminations. Monomeric styrene—malleic esters and allyl malleate are two types of contact resins.

Plywood Overlays

The most important low pressure laminate from a volume standpoint is plywood. Since its start and up to the beginning of the war Douglas fir plywood had an ever-expanding market. At the outbreak of the war and during the war production was at its peak and even slightly lower due to shortage of logs and manpower. Research has been conducted to overcome the obvious defects of plywood such as grain raise, poor paintability, and poor surface characteristics for abrasion resistance. The most promising has been the use of impregnated paper and pulp as overlays. During the war, the Army and Navy used some of these for special jobs where abrasion resistance and a hard surface was required. Now that the war is over and a peace-time market prevails it is imperative that the plywood industry look to this picture as an obvious new and better market for plywood.

As logs have decreased in quality it has been apparent that some means was necessary to help upgrade the existing veneers. Overlay plywood is one answer to this.

When you keep in mind the fact that kraft paper or pulp impregnated with a phenolic resin is almost equivalent in cost on a pound basis with the same weight of exterior plywood it can be seen that there is an economic basis for their combination to produce a new and useful material.

At the present time there have been two commercial types. One is a high resin-impregnated paper overlay of around 5 to 10 points thickness and with roughly 60% resin solid in the sheet. There is enough resin present to allow the sheet to bond to the plywood by itself. This type gives a somewhat brittle, highly abrasion-resistant surface. Inderon as manufactured by the Washington Veneer Company and Buffelin Mfg. Co. is an excellent example. This type does not hide the surface characteristics of the plywood and therefore requires good face stock under it. Apparently grain raise and checking takes place even if on a smaller scale than with regular plywood. The big advantages of this type are its smooth surface, abrasion resistance and the fact that it presents a moisture barrier.

The other type consists of plywood covered with a pulp-type sheet of from 15-50 points in thickness with from 15-35% resin in the sheet. There is not enough resin to cause self-bonding in the press so the pulp sheet has to be glued to the panel. This pulp sheet hides grain raise, allows the use of inferior veneers for face stock, and in general up-grades plywood. The surface has increased paintability and better abrasion resistance than fir plywood itself. Super Harborite produced by Harbor Plywood Corp. is an overlay of this type. The pulp-type overlay corrects these defects of plywood. It increases the production of higher grade plywood from existing veneers.

Due to the need for "balance" in a plywood panel to prevent warping an overlay has to be applied to both faces.

Uses for the paper-faced overlay are in places where abrasion resistance and hardness are needed—table tops, laundry chutes and floors. The pulp-type overlay with its superior paintable surface and prevention of grain-raise should be suitable for the outside and inside of freight cars, truck bodies, store fronts, and uses where these attributes are a necessity. One drawback to these overlay panels that needs to be corrected is the lack of protection for the edges from the weather. Fabrication methods will help in this respect, but the answer is not complete.

Due to the fact that the present method of production on overlays has been to impregnate the papers with resin after the dry sheet has been formed, it is obvious that a cheaper method would be to impregnate the stock in the beater or at least before it leaves the paper machine. One successful method for doing this is the Novak process of Raybestos Manhattan Co.

Forecasts

Present guesses as to the annual consumption of pulp in this field range from 10,000 to 33,000 tons per year. Comparing this with the 14,000 tons used in laminates at the present time it can be seen that a substantial increase is in the offing.

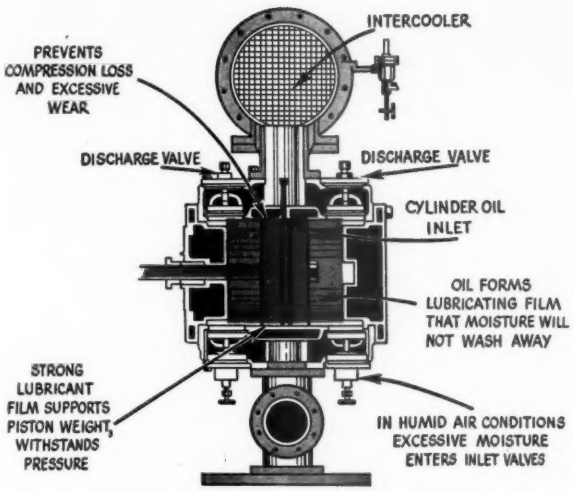
The Douglas Fir Plywood Association is at present setting standards for this overlay industry and will soon be in the position to exercise quality control over the production. They will test samples of all impregnated papers presented for test according to the standards they have set up. They feel that it is necessary to have these industry standards set before production on any scale begins.

One phase of this overlay picture needs to be touched on as a word of warning. The plywood mills are set up as far as equipment and personnel is concerned to form these industrial overlays, but they are not equipped when it comes to decorative and special types of laminates.

When decorative laminates are made, especially of the type made by Formica, special heavy, very accurate presses are required for these high pressures. In reality, it is a field by itself. Unless special equipment is installed the industry out here will be of necessity confined to low pressure laminates of the two types mentioned. Most of the decorative types are high pressure laminates glued to low pressure core stock such as Douglas fir plywood.

The future of high pressure laminates is limited by the cost of production which is so much greater than material cost. However, with the low pressure laminates, material cost is more important. Considering the factors involved it is safe to predict a big increase in the use of paper for low pressure laminates, particularly here on the West Coast.

STANDARD ENGINEERS NOTEBOOK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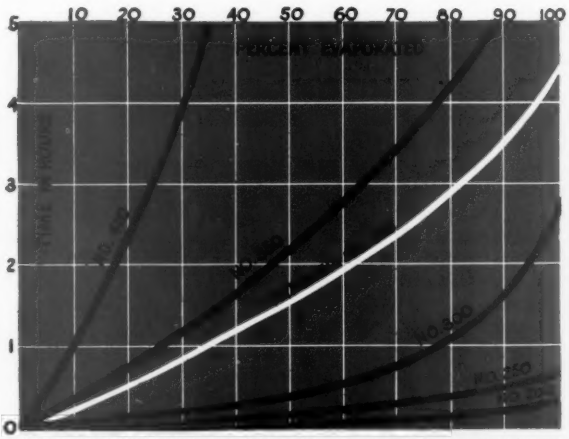

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UREA FORMALDEHYDE RESINS IN WET STRENGTH PAPERS

By Herbert L. Wampner

Director, Pac. Coast Tech. Service, Reichhold Chemicals, Inc.

(Paper given at TAPPI meeting, Seattle, Dec. 4, 1945)

At this symposium on "Synthetic Resins in the Paper Industry," I have been asked to speak on the use of urea-formaldehyde resins in wet strength papers. The past four years have seen great strides made in this field. It was absolutely necessary during the war to have paper products which would stand up under adverse conditions and they were made by treating the paper with resins.

Someone has stated that a war advances surgery by 20 years—this is also true of other sciences as well. Under normal circumstances, the present scale of use of synthetic resins in paper would probably not have been realized for many more than the four to five years which have elapsed since Taft[1] discussed this same subject at a TAPPI meeting in the East. His data on wet strength papers was all based on laboratory experiments. Further evidence on the recent commercialization of this process is the fact that such well-known books as Sutermeister's[2] "Chemistry of Pulp and Paper Making" (third edition, 1941) and Witham's[3] "Modern Pulp and Paper Making", published a year later, do not even mention them. At the present time, however, resins of this type are being used in considerable tonnage in a wide variety of paper.

In 1941, Taft mentioned that there were no satisfactory resins for beater application but today, not only Reichhold, but their competitors as well, have resins which are being used in beaters with highly gratifying results. This is especially true of our P-426 Beckamine, to cite a trade designation, which tends to be substantive to cellulose and therefore is actually attracted to the pulp particle even from dilute solution. With a resin of this type, there is very little loss in the white water and practically all of the resin which is added to the beater is in the finished sheet.

The advantages of having a resin which is substantive are, of course, obvious. Primarily, there is no loss of resin in the white water but of almost equal importance, is the fact that the formulation of the resin can be chosen to give the maximum stability life and solubility without harming its performance in the final sheet. As a result, resins can now be supplied which will stand infinite dilution without throwing out and they need not be advanced, to obtain satisfactory performance, to a stage which definitely detracts from their stability life.

While P-426 Beckamine was designed especially for use in the beater, it can also be applied to the furnish at the fan pump or headbox, or directly to the sheet by the means of the size press. When the application is made to the beater, it is recommended that the pH, in general, by the addition of the proper amount of alum, be kept in the range of 4 - 5. The two factors influencing conversion of the resin, in addition to pH value, are time and temperature. When the conditions are such that the material will not reach the wire for a prolonged period and the temperature in the beater is high (120-130°F), it is best to add the resin at the fan pump or headbox.

If the resin is introduced at the fan pump, it is suggested that the pH be adjusted to a range of 5 -6. If the furnish is slightly lower in pH than normal, there is no need to make additional adjustment on the resin itself. Similarly, when the resin is applied in the size press, its pH should be adjusted to 5 - 6 for average use. The exact adjustment depends on the acidity of the paper being treated.

Under normal conditions, bleached paper will produce less wet strength than unbleached paper. Some of the salts required for bleaching tend to act as buffers and prevent the pH from going as low as is needed. When this condition is encountered, the addition of a strong acid, like hydrochloric, is indicated. If the pH is adjusted to 5.5 with this material, then the usual alum introduction will give the remaining decrease in value.

This question of pH and buffering is an important one and I wonder if sometimes we don't fail to take it properly into account when examining the results obtained with a given set of conditions. I, personally, have never seen data on the pH value of the paper itself during the stage when the resin is curing. We know that the pulp slurry may be adjusted to a pH of between 4 and 4½ and that the white water coming off the machine will still be fairly close to this value but what is the pH, under these conditions, of the paper itself? It is this pH which influences the speed of cure of the resin. The acidic materials are highly water soluble and are removed, to a considerable degree, from the paper. On the other hand, fillers and the like, which have a definite tendency to buffer, remain on the paper. It was reported by Wise[4] that even such inert materials as silica and barium sulfate, tended to prevent the normal reduction in pH when acidic materials like alum were added to a suspension of the filler in a water solution of urea resin.

We also know that the choice of pigment in synthetic baking finishes containing urea resins plays an important part of the hardness of the film immediately after baking. Assuming this hardness to be an indication of the extent of cure of the urea resin, we can readily see that pigments which are alkaline, or have a tendency to have an alkaline reaction from heating, may retard the curing of the urea resin. Thus, whiting which is sometimes used in such coatings to extend titanium dioxide gives a slower cure than calcium sulfate. Similarly, zinc oxide, even though it has a hardening action in the alkyd resin, seems to be somewhat inferior to antimony oxide.

A similar investigation of the conditions applying during the normal curing stage of the resin in paper might throw some beneficial light on further improvements in wet strength papers.

The quantity of resin used for any application depends on the improvement of wet strength desired. Some manufacturers feel that a 5 - 10% improvement over untreated pulp is satisfactory, whereas others require a considerably greater retention of strength. The exact quantity used has been found to vary from one-half per cent on the basis of the dried pulp to as

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high as 4½%. Thus, map paper which was in large demand by the Armed Forces was originally made with melamine-formaldehyde resin but because resins of the P-426 Beckamine type have a lower cost and do not require a pretreatment, they have replaced the former. Comparable results are achieved when from 3½-4½ of the Beckamine resin was used to replace the customary 2 - 2½ of melamine resin.

P-426 Beckamine is also finding application in size sheets and waterleaf paper for towelling, wrapping paper for vegetables and meats, quick frozen foods, grocery bags, multiwall bags, blueprint paper, wiping tissues, outdoor advertising paper, diaper paper, etc. Under certain conditions, sheets containing relatively high percentages of fillers, can be made to possess high wet strength with the incorporation of P-426 Beckamine. This will afford a dense paper and, at the same time, there is a saving of critical pulp.

Wet Strength Factors

The optimum wet strength obtained from such treatment is dependent on a number of factors which can be listed as follows in summary—

1. The percent of resin added.
2. The pH value at time of addition and in the paper.
3. The quality of the pulp.
4. The kind and amount of size.
5. The time and temperature before the wire.
6. The length and/or speed of the machine.
7. The temperature of drying.

Sometimes the optimum results are obtained as the paper is leaving the machine but usually there is some increase in wet strength on aging. This, again, suggests that possibly the pH condition in the paper itself was not suited to the time and temperature of drying. Of possible interest, also, are the physical constants for P-426 Beckamine (Table I) and a comparison of its performance (Table II) with results of two competitive resins in plant runs of a tag stock. The resins in each case were added to the beater and the paper was formed on a cylinder machine.

Table I

P-426 Beckamine Constants

Non-volatile	48-52%
Volatile	Water
Water Tolerance	500% Plus
Viscosity	D-G
pH Value	7-7.5
Spec. Gravity	1.207-1.217

Table II

Paper Made Resin	Aug. 17 4% Resin A	Aug. 17 4% Resin B	Oct. 24 4% P-426
TESTS			
Tear	280/384	272/448	256/280
Gauge	.15.1	14.8	14.7
Weight, 24x36-500	209.2	204.5	180.0
Dry Tensile	67.4/18.3	67.3/19.8	60.9/16.0
Wet Tensile, Soak 3 hrs.	15.0/ 4.2	18.0/ 5.5	18.3/ 5.4
Retention (%)	22.3/23.0	26.8/27.8	30.0/33.8
Wet Tensile, Soak 24 hrs.	13.0/ 3.8	13.5/ 4.3	15.1/ 4.3
% Retention	19.3/20.8	20.1/21.7	24.8/26.9
Dried 3 hrs., at 212° F., Soak 3 hrs.	24.7/ 5.3	20.7/ 6.0	24.1/ 6.2
% Retention	36.7/29.0	30.8/30.3	39.6/38.8
Dried 3 hrs. at 212° F., Soak 24 hrs.	17.1/ 4.9	19.4/ 5.4	18.0/ 4.4
% Retention	25.4/26.7	28.8/27.3	29.6/27.5

The fiber for these runs was a mixture of kraft, kraft scrap and a small amount of sulfite together with other ingredients as given in the following formula:

Fiber (dry basis)	3500
Rosin size	200
Starch	105
Sodium meta silicate	87
Alum	245
P-426 Beckamine Sol.	280

The alum was calculated to give a pH of 4.2. The resin was introduced to deposit 4% on the fiber. The pH of the white water at the machine was approximately 4.5.

Table II

It should be noted in examining Table II that the run with P-426 was made two months after the runs with the other two resins even though all strength tests were run at one time. The normal increase in wet strength which occurs in the first two weeks, after this type of paper is made, had occurred in all but the P-426 run. Furthermore, the caliper and weight comparisons suggest that the stock with the P-426 had not been calendered quite as much as those with the other two resins. Both of these facts may explain the much lower cross-grain tear strength of the original P-426 sheet and it probably prevented this sheet from showing an even better wet strength under the various conditions of testing given in the table. The much higher values in each case, after the three hour baking followed by soaking, indicate that there is considerable undeveloped wet strength in each run. Might not this be due to a buffering in the paper itself which gives it a high pH and retards cure?

So far, we have considered only what has been done in the past. It is always of interest to catch a glimpse of the future whenever possible. In some recent plant runs, resins of types differing substantially from P-426 Beckamine have been used. You may or may not have heard that there is considerable activity in the East on using various plastics other than urea-formaldehyde to add stiffness, wet strength and the like to paper stock. The results indicate there is 100% retention of the resins regardless of the quantities used. There also seems to be a considerable reduction in power costs and an almost complete elimination of fiber loss in the white water.

[1]Philip B. Taft, Paper Trade J. 112, No. 10, 34-8, (1941).
[2]Edwin Suttermeister, S.B.; **Chemistry of Pulp and Paper Making,** Third Edition, 1941; John Wiley & Sons, Inc., N. Y.
[3]G. S. Witham, SR; **Modern Pulp and Paper Making,** Second Edition, 1942; Reinhold Publishing Corp., New York.
[4]John K. Wise, Ind. Eng. Chem. 36, 144 (1944).

Canadian Meeting Jan. 23-25

Canadian Pulp and Paper Association was to hold its first postwar meetings in Montreal Jan. 23, 24 and 25, with a vast array of subjects awaiting discussion by the delegates. Indications were that attendance would be unusually large, although representation from the Pacific Coast was less than usual, Paul E. Cooper, president of Pacific Mills, Ltd., and D. G. Stenstrom, representing the British Columbia division, being the only Vancouver men there.

One of the features of the meeting was to be a review of the industry in Europe and prospects of competition from that quarter. Dr. Allan C. Hill of Anglo Canadian Pulp and Paper Co. was one of the industry's representatives who studied the postwar industrial picture overseas. Another was Niles M. Anderson, vice president and general manager, Marathon Paper Mills of Canada.

R. S. Kellogg Cruises Cuban Waters

It has been a year of many problems in th newsprint industry—and R. S. Kellogg of the Newsprint Service Bureau is doing some midwinter cruising, and thinking, in Cuban waters at the helm of his gaff-rigged New England-built ketch.

Until the middle of February his address will be simply "in care of American Consulate, Havana."

Joins North American

W. O. Wilkinson joined the North American Pulp & Paper Co., Sheboygan, Wis., on Jan. 1, as assistant manager of maintenance and power. He was formerly plant engineer with Beach & Arthur Paper Co., Modena, Pa.

GEORGE L. WITHAM, new Southern Representative of Orr Felt & Blanket Co., Piqua, Ohio.

Geo. Witham Represents Orr Felt in South

George L. Witham, 214 Upham St., Mobile, Ala., has been appointd representative in the South for the Orr Felt & Blanket Co., Piqua, Ohio, it is announced by John P. Koester, secretary of the company.

"We decided to have a rsident of the South as our representative in that territory who can be available to our customers for prompt service at all times," said Mr. Koester.

John L. Purdy, who served the Southern territory for Orr for years, will remain with the organization but his territory will comprise Ohio and other Midwest states.

Member of a distinguished family in the industry, Mr. Witham has had many years of technical and practical experience in the industry and he has long been active in Southern pulp and paper industry associations.

Hawley Sales Manager Dies on Trip

Arthur Daniel Hosfeldt, 58, sales manager for Hawley Pulp & Paper Co. since 1932, died in his car while returning from Seattle to Portland, Ore., Dec. 18. He, with Mrs. Hosfeldt, had made the trip north to welcome their son, Ensign Arthur D. Hosfeldt, on his return from service in Chinese waters.

A native of the Portland area, Hosfeldt was with Blake, McFall & Co. 16 years and became its sales chief. The following four years he spent with the Parker-Scott Co., which later became Scott-Hosfeldt Co., with Mr. Hosfeldt as vice-president. After sale of this firm, he joined Hawley Pulp & Paper Co.

350 Attend Dinner At Bellingham

Over 350 employees and friends of the Puget Sound Pulp and Timber Co. were on hand at the Bellingham (Wash.) Hotel Dec. 22 to enjoy the annual budget and dance sponsored by the management of the company. To lend variety to holiday fare, the dinner consisted of ham.

All the employees had been recipients of fifteen pound turkeys as a Christmas gift.

Lawson Turcotte, executive vice president, acted as toastmaster. At the head table were Ralph Roberg, sales manager, and Mrs. Roberg; Maj. Harry Binzer, executive secretary, and Mrs. Binzer; Erik Ekholm, general superintendent, and Mrs. Ekholm; Mr. and Mrs. Turcotte, and Elton Carr, president of Local 194, Pulp and Sulphite Workers, and Mrs. Carr.

Mr. Turcotte welcomed back to the plant, Commander Harold Cavin, U.S. N.R., as plant engineer.

Cancell at New Post

Benton R. Cancell assumed his new duties as vice president of Powell River Co. following his arrival in Vancouver, B. C., early in January. Mr. Cancell was director of the Forest Products Bureau of the War Production Board during 1945.

Eugene Singer Co. Has New L. A. Address

Eugene Singer Co., paper merchants, have moved to new offices at 1521 Cross Roads of the World, Los Angeles 28. These are buildings of international architecture, which derived its name from the plan to have it be a mart for merchandise from all parts of the world. It is near the center of Hollywood.

Lloyd Riches Heads Columbia Empire Industries

Lloyd Riches, vice president and general manager, Western Paper Converting Co., Salem, Ore., was elected president of Columbia Empire Industries, Inc., on Dec. 20, succeeding Tom C. Young, president of Pacific Roofing Co., Portland, Ore., who leaves the office after bringing to it the largest association membership in its history.

Mr. Riches set up a three point future program: (1) resumption of a prewar publicizing program for industries and products; (2) continued interest in national and state legislation vital to business and industry; (3) increasingly closer attention to labor trends and labor affairs.

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HAMER ALL STEEL REGULAR TYPE PLUG VALVES
150 lb. and 300 lb. Types

An economical valve for standpipe and standpipe manifolds, and for all general service. It has the exclusive Hamer plug-adjusting nut under the head, which gives positive control of the plug under all conditions. The plug is chrome plated to resist corrosion and turning friction, but is available in other types of surfacing, if chrome is not desired. Designed for either lubricated or non-lubricated use. Sizes: 1½", 2", 2½", 3", 4". Write for new engineering bulletin.

Model No. S30S
Series 300 Screw End Valve; used also for Series 150 Service. Working pressure 600 lbs.; Test pressure 1200 lbs.

Model No. FS30
Flanged, Series 150 and 300. Working pressure 600 lbs.; Test pressure 1200 lbs.

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OIL TOOL
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2919 Gardenia Ave., Long Beach 7, California
Use Blinds and Plug Valves for Every Industry

Cost Accountants Hear How Paper Company Worked Out a Pension Plan

At Portland, Ore., chapter meeting of National Association of Cost Accountants on Nov. 20. FRANK DRUMB (left), Director of Public Relations, Crown Zellerbach Corp., San Francisco, was principal speaker; with CECIL PEIRANO (center), auditor of Crown-Z Corp., Portland, and President C. E. RAWLINSON, controller of Gunderson Bros., shipbuilders.

Considerations to be weighed and difficulties encountered in setting up pension and retirement plans for corporations were enumerated before the Portland, Ore., chapter of the National Association of Cost Accountants at Portland, Nov. 20. The pulp and paper industry had been chosen to furnish the speaker because of recently matured plans for pensions for its employes.

Cecil Peirano, auditor of Crown Zellerbach Corp., Portland, introduced Frank A. Drumb, of San Francisco, Director of Public Relations, of that company as principal speaker. Mr. Peirano quoted a deputy commissioner of internal revenue to the effect that in the years since 1937 more than 17,000 pension plans had been submitted for study, and that each r e q u i r e d a vast amount of preliminary work to bring to maturity and establishment. Mr. Peirano mentioned many months of study by his company's pension plan committee, of which Mr. Drumb was a member.

Mr. Drumb placed normal employment for C-Z Corp., at 8500, with personnel scattered among nine paper plants, three waxed paper plants, and with more than 1000 men engaged in logging operations. Emphasizing the difficulty to fitting a retirement plan for such diverse employment, he said the plan also had to fit "like a suit of clothes" even the Zellerbach Paper Company and sales organization in the East.

The motivating ideas behind any retirement plan, Mr. Drumb said, were:

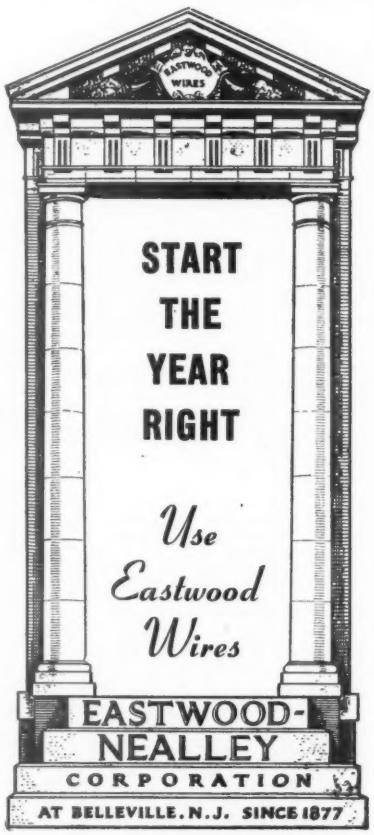
1. To make payroll savings by retiring superannuated employes.
2. To offer employes greater security.
3. To fund the retirement expense while the employe is sound; like setting up depreciation reserves on machinery.
4. To keep the organization young and offer more promotional opportunities, which in turn may help profits.
5. To reduce operating costs by reducing turnover.
6. To help in recruiting new employes.
7. To build up community goodwill.
8. To take care of this social problem so that the government will be less inclined to paternalism.

None of these he held to be predominant, because a voluntary retirement plan had been in operation for some years. But he said the company was mainly influenced by a desire to see that employes with long service records be given sufficient income to enjoy life on retirement.

Many plans have been tailored, he said, to groups with some common denominator, but he pointed out that this plan had been fitted to groups in office, sales and skilled jobs, logging and common labor. Yet 98% of the entire total employe group has subscribed to the plan. Many earlier retirement plans were wrecked on the rocks of increasing liabilities never met, he intimated, but the stimulant since 1937 which had incerased such plans twenty-fold had been the making of such funds deductible from corporate income.

His corporation, when times indicated such a plan might be undertaken, set a staff employe to study all retirement plans with an eye toward development of a specific plan to suit its needs. A committee resulted from the study, including a vice president of Crown Zellerbach Corp., the treasurer, the comptroller, the head of the industrial and public relations department, a vice president of Zellerbach Paper Co., (the sales co.); a member of the labor union, and a committee secretary who did the research work. After much clearing away of chaff, the group evolved a plan acceptable to directors and employes alike.

One consideration Mr. Drumb believed vital was, "How much can a company spend in good times as well as bad?" Any plan based entirely on good years would be worthless in bad years, he held, and this could not be tolerated since those



who subscribe will in looking forward depend upon what will come to them in the retirement years.

"Generosity must be weighed carefully if retirement is to succeed," he added, in pointing out that some features of the plan most certain to benefit old-time employes were most sharply criticized by them.

The Crown-Zellerbach plan functions in two classes — past service benefits and current service benefits, with a five year qualification period for past service. Benefits for past service reached the sum of more than $4,000,000, amortized over a ten year period which called for about $500,000 per year in payments and costs. Current service benefits entail another $500,000 a year. The company assumes all past service outright, with a "contributory" current service plan whereby employes pay in 2% on the first $3000, and 4% above that mark, with the company paying in approximately $2.00 to each $1.00 paid by an employe. Psychologically, he said, no plan is good unless employes contribute.

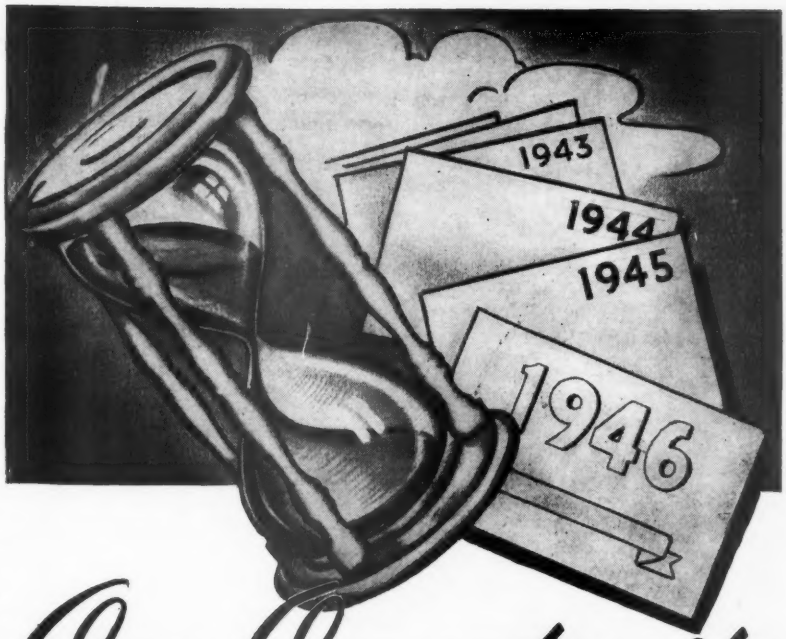
To arrive at earnings, sometimes for employes with over 50 years of service already, where records are inadequate and where the corporation has absorbed other concerns, and where dollar values have so widely fluctuated, he said the committee based the entire plan on earnings in two average, recent year, 1940 and 1941, without consideration for long overtime earnings, but with adjustments for illness.

Under the plan a minimum retirement payment of $25 and a maximum of $1000 per month were established, with retirement age set at 65, except for those currently in the 60-65 age group who were given time to adjust with those 65 permitted to retire at 70. Privileges of deferment from year to year by the board of directors, and of optional earlier retirement were provided. The plan was set up under Trust Fund arrangement with a large bank in New York, so as to pass on these benefits to the beneficiaries.

In answer to a question, Mr. Drumb stated that should an employe take the optional earlier retirement, benefits amounted to only about 60% of full retirement benefits. Two per cent of employes, he said, had not accepted the plan, explained they had only lost the privilege of past benefits, but could begin at scratch at any time.

Ranke in Kansas City

M. W. Ranke, former beater room consultant at the Pioneer-Flintkote Co., in Los Angeles, and before that in the Pacific Northwest, went to Kansas City, Mo., to join the American Asphalt Roof Corp., in a supervisory capacity.



Our Opportunity

to be of greater service

During the past several years, we have had one major objective. That objective is to be of greater and growing service to the paper industry.

Now, it approaches full realization — for the work we have done towards it is approaching completion. Much of it is complete. It has taken three distinct forms:

1. OUR ENGINEERING STAFF has grown by the addition of top-flight personnel.
2. OUR FACILITIES are being vastly improved through a modernization program which includes both additional factory space and the finest precision machinery.
3. OUR DESIGN AND EXPERIMENTAL WORK has progressed to the point where you may expect extremely interesting announcements of NEW PRODUCTS — SOON.

All of this adds up to a greater capacity to serve you with the finest in mill equipment in 1946 — and increasingly, in the years to come.

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Fourdrinier Wires • • Dandys • • Cylinders • • Wire Cloth

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CURTISS-WRIGHT CORPORATION
AIRPLANE DIVISION-BUFFALO PLANTS
BUFFALO, N.Y.

September 12, 1945

Buell Engineering Co., Inc.
70 Pine Street
New York 5, New York

Gentlemen:

It is a pleasure to answer the recent inquiry from your Engineering Department checking upon the mechanical operation of the Buell Dust Recovery Systems installed in our three plants.

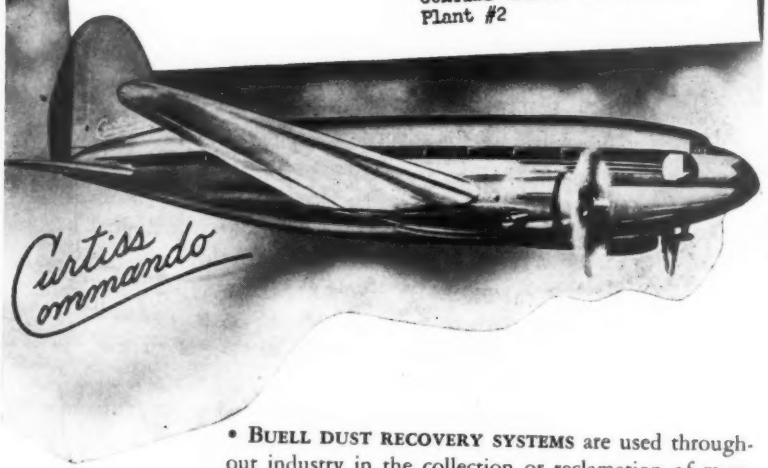
Buell Fly Ash Collectors have been in service on twelve (12) boilers since 1941, operating continuously.

Since the time of their installation, they have cost us nothing for maintenance or repair. Their collection efficiency has fully met our requirements, and they have accomplished in a highly satisfactory manner the job for which they were installed.

Yours very truly

Guy Maher

Guy Maher, Plant Engineer
CURTISS-WRIGHT CORPORATION
Plant #2



• BUELL DUST RECOVERY SYSTEMS are used throughout industry in the collection or reclamation of many kinds of dust, in numerous production and process operations. Hundreds of satisfied industrial users will attest to Buell's—"High Efficiency, Low Maintenance, Long Life."

Write for Buell's new, revised book "The Buell {van Tongeren} System of Industrial Dust Recovery" now in its fourth printing.

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DUST RECOVERY SYSTEMS

BUELL ENGINEERING COMPANY, INC.
70 Pine Street, New York 5, N. Y.
Sales Representatives in Principal Cities

DESIGNED TO DO A JOB, NOT JUST TO MEET A "SPEC"

Newsprint Situation— It Gets No Better

Inquiries made to leading newsprint producers by PULP & PAPER INDUSTRY reveals that the new ceiling price of $67 a ton, allowed last month by OPA, is not going to be enough to steam the trend of the U. S. industry away from newsprint production into higher grades of paper. This trend will continue in 1946 and 1947, according to plans of a number of mills.

The New York World Telegram estimates the $6 a ton price boost means an increased cost to newspaper publishers of $20,000,000 this year.

In a survey of the newsprint supply situation in 1946, recently completed by the Newsprint Association of Canada, it is stated that "the only safe conclusion" is that supply in the U. S. during the present year as presently estimated provides no safe margin, and justifies no increase, over the rate of total orders placed with Canadian mills in the final quarter of 1945.

The association adds:

"Comparison of U. S. total supply in 1945 and 1946 can readily be made to show various percentages of gain in 1946, depending on what portions of the two years one chooses to compare. Such comparisons of total supply may, however, be highly inappropriate if applied to individual producers or consumers, and may give rise to excessively optimistic ideas of 1946 supply. These wrong ideas are promoted, for example, by comparing the estimated 250,000 tons a month from Canada in the final quarter of 1945. The facts are that in the final quarter of 1945 orders received by Canadian mills from U. S. customers have amounted to 243,000 tons a month. The apparent U. S. consumption of Canadian newsprint in the final quarter of 1945 has been 249,000 tons a month, compared with estimated Canadian delivery of 250,000 tons a month in 1946."

Westphalen Elected Masonite Vice President

Charles H. Westphalen, who has been associated with the Masonite Corp. since its inception, has been elected a vice president and director of the company and appointed general manager of the Laurel, Miss., plant by directors at Wausau, Wis., following the annual meeting of stockholders held in Wausau.

Mr. Whestphalen came to Laurel in 1920 with the late William H. Mason to assist him in research for recovery of naval stores from lumber during manufacture and worked with him in development of the Masonite process.

Herty's Son is Honored

Dr. Charles H. Herty, Jr., who is the son of the late director of the Herty Laboratory in Savannah, Ga., which did much to advance use of Southern pine for pulp and paper, was elected president of the American Society for Metals in Cleveland, on Nov. 2. The younger Dr. Herty is research engineer and assistant to vice president of Bethlehem Steel.

25-Year Pin

W. E. Penfield, vice president in charge of production, Gulf States Paper Corp., Tuscaloosa, Ala., was presented with a 25-year service pin during the month of October.

Heads Bulkley-Dunton Company in Manila

Lieut.Commdr. Philip S. Crovat, USNR, has joined the Bulkley-Dunton organization, upon discharge from the navy, in a plan to expand the company's operations in the export field.

Commander Crovat has had 20 years experience in the Orient; twelve in China and eight in the Philippines, and will leave as soon as possible for Manila to become president of a Bulkley-Dunton subsidiary company to be formed to distribute American and Canadian papers not only in the Philippine Islands but in China, Indo-China and other Oriental markets as they become available for normal trade.

Western Machinery's New Sales Engineer

Bert F. Thompson has been appointed sales and service engineer for logging, sawmill, and contracting equipment of the Western Machinery Corp., with headquarters at 816 S. E. Taylor St., Portland 14, Ore.

He comes to Western Machinery Corp. with a background of extensive sawmill and logging experience. Recently he was with the Pacific Lumber Co. of Scotia, Calif., as mechanical supervisor.

New Hooker Laboratory

The Hooker Electrochemical Co. Niagara Falls, New York, announces the organization of a Physical Research Laboratory. The primary function of the laboratory is to provide physical analyses and controls for all phases of chemical work at Hooker. Application of physical controls to research, development, and production are underway at the present time. The types of work include infra-red and ultra-violet spectroscopy.

The new laboratory is under the direction of Dr. L. J. Brady, formerly a Fellow at the Mellon Institute of Industrial Research. Dr. Brady is well qualified by training and practical experience in work of this nature. He received his B.S. from Utah State College of Agriculture and his M.S. and Ph.D. from Pennsylvania State College.

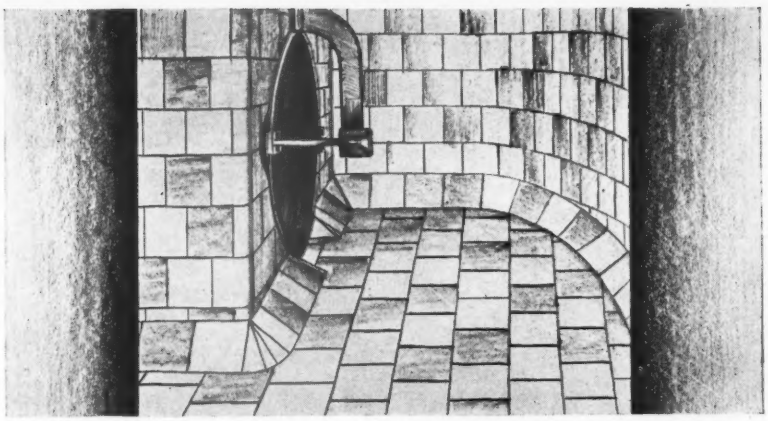
Commander Anable, USNR, Returns to Dorr Co.

Lieut. Comdr. Anthony Anable, U. S. Naval Reserve, now on terminal leave, rejoined The Dorr Co., New York, as of Jan. 1 as director of public relations and advertising.

Commander Anable, as navigating officer of an aircraft carrier, participated in major naval actions in support of invasions of Southern France, the Philippines, Iwo Jima and Okinawa.

Lockport Felt Adopts Group Insurance

The Lockport Felt Co., of Newfane, N. Y., manufacturer of pulp and paper felts, has adopted a comprehensive program of group insurance which provides four-way security for its employees. William H Lee, president and general manager, said benefits includes life insurance, ranging from $1,000 to $3,000; similar amounts of accidental death and dismemberment insurance; non-occupational disability benefits, and visiting nurse service.



STEBBINS LININGS ★ ★ ★

LAST and LAST and LAST

And for good reasons. Into each lining and tank installation goes the knowledge gained through sixty-two years devoted exclusively to developing materials, design and installation techniques. Stebbins service includes; an analysis of your problem, a design for service and durability, and a construction for economy and efficiency.

For economical and durable linings—consult Stebbins.

Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE 1, WASHINGTON

CHINA PLANS KRAFT INDUSTRY, SENDS STUDENT TO WISCONSIN

In China there is presently a potential market of about 600,000 tons of paper annually, according to Cheng Ke Jen, young Chinese graduate chemist who is spending a year in Port Edwards, Wis., studying the operations of the Nekoosa Edwards Paper Co.

Mr. Cheng, who is in this country by arrangement of the U. S. Foreign Economic Administration and whose expenses are paid by the Chinese Ministry of Economic Affairs, told PULP & PAPER INDUSTRY in an interview that China plans to make more and better paper. At present, it is mainly dependent on paper imports, especially of better grades.

He said, however, that he had not heard of inquiries recently made in this country by the U. S. Small War Plants Corporation for technical information which would assist in the building of a kraft industry in China. The U. S. agency made the inquiry in form letters which reached this magazine, and apparently was asking for free information.

During the war, Mr. Cheng said, there were only two mills operating in China —these were soda pulp-paper operations, each with capacity of only six tons daily. Before the war, he said, there were also two sulfite and soda mills in Shanghai and Canton which made up to 20 tons each per day, but these were taken over by the Japs. They are expected to be restored to operation. Also in China are a number of very small hand-made paper mills.

China makes paper of bamboo, straw, reed and cornstalk as well as native wood. At Nekoosa-Edwards, Mr. Cheng said he was primarily interested in the study of sulfate pulping. He is working in the mill laboratory. His year's work will expire next August.

Atkins Builds New $1,500,000 Plant

A modern daylight steel-concrete structure is being built to replace the present 75-year-old plant of E. C. Atkins and Co. of Indianapolis, world's largest exclusive manufacturer of saws.

E. C. Atkins, president of the company, said plans involve an expenditure of more than $1,500,000.

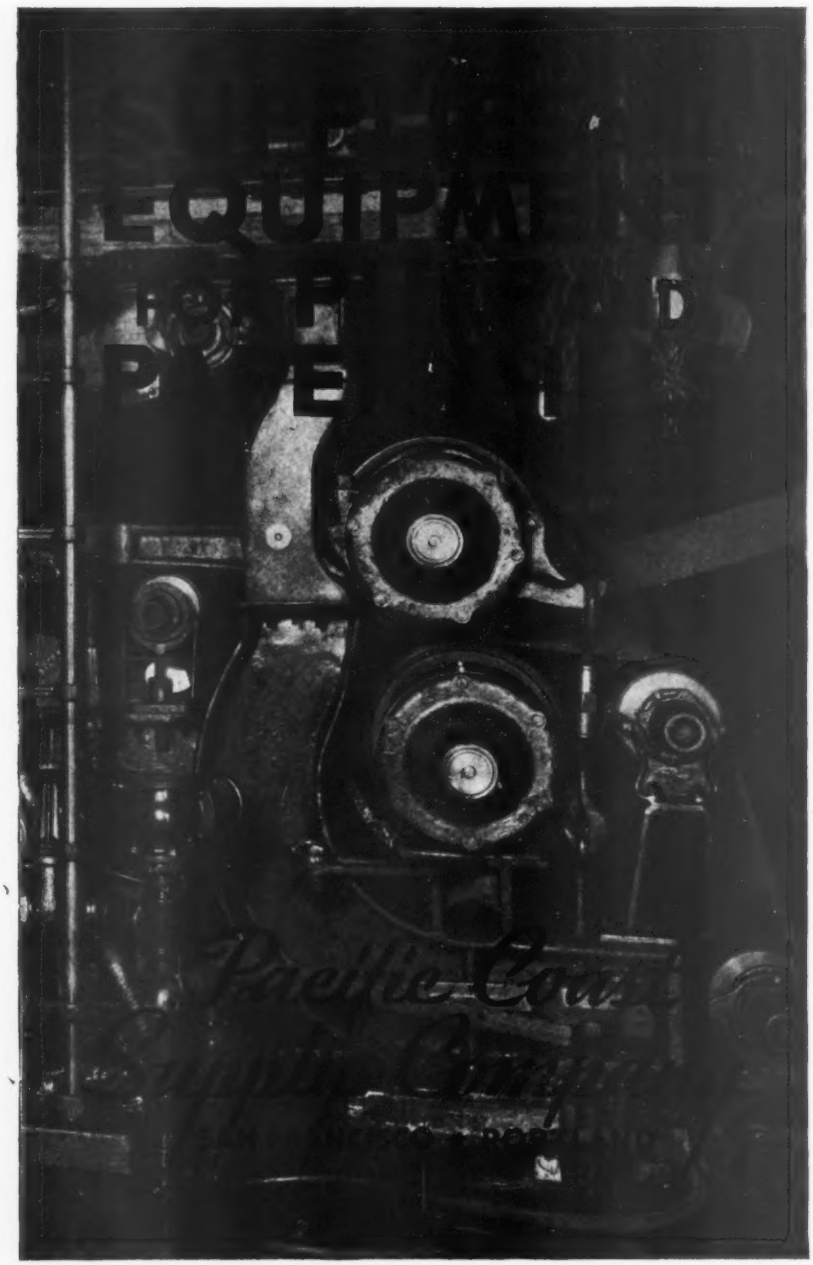
Provision for advanced production and assembly lines methods will incorporate latest engineering principles and modern methods of shop practice. The entire layout will be arranged to provide for straight line production throughout the plant.

Ex-Rayonier Man Dies

William L. Barnes, former chemist at Rayonier Incorporated, Hoquiam, Wash., died recently in Seattle. He was 37 and headed communications at Sand Point Naval Air Station.

Among recent guests at Powell River, B. C., were ROBERT M. FOWLER, President of the Canadian Pulp and Paper Association, Montreal, and MRS. FOWLER, and GLEN SAMPLE, Minneapolis, Director of Powell River Co., and MRS. SAMPLE. During his war service as a commander in U. S. Navy Mr. Sample was replaced on the Powell River Co.'s board by Mrs. Sample, daughter of the late M. J. Scanlon, who was President of Powell River Co. at time of his death several years ago. Mrs. Sample relinquished her directorship in her husband's favor when war ended.

The picture shows, left to right: Mr. Sample, Mrs. Fowler, Mrs. Sample, Mr. Fowler.



Mount and Alsop Head Chemical Company In Change

Hugh G. Mount and Fred E. Alsop, both of whom have had long association with the Pacific Coast pulp and paper industry, are together in the Hall-Mount Company, a re-organized firm which handles chemicals, china clay, colors, resin, pigments and paper.

Mr. Mount, president-treasurer, was with Dicalite Company for 10 years. Mr. Alsop, vice president-secretary and sales manager, was with Van Waters and Rogers for 15 years.

Their Portland office is 902 N. W. 14th Ave. (9), and they will also have Seattle representation. The firm operated for about one year, serving the same industry, before the change.

Packaging Institute Elects Officers

Walton D. Lynch, vice president of National Folding Box Co., has been re-elected president of the Packaging Institute.

W. O. Brewer, manager, pharmaceutical sales, Calco Chemical Div., American Cyanamid Co., and George A. Mohlman, president, Package Machinery Co., were reelected vice presidents of the Institute at the recent New York meeting.

McGrath Returns

After a five-year absence, W. F. McGrath has returned to the Pacific Paperboard Co., Longview, Wash., as mechanical engineer. He had been with the company for ten years before leaving. He was a school vocational instructor and war training director during his absence.

Represents Paper Lines

Arthur H. Colton, son of L. A. Colton, vice-president, Zellerbach Paper Co., San Francisco, is now the Pacific Coast representative of the California Paper & Bag Co., St. Louis. He has opened offices at 320 Market St., and will represent other paper goods lines.

Campbell Is Back

After an absence of three years from his duties of instrument technician for the Puget Sound Pulp & Timber Co., Ivan Campbell is now back at his job after having served as a lieutenant in the navy. Mr. Campbell was deck officer on an LST which carried supplies to the beachhead in Normandy on "D-Day."

LITERATURE AVAILABLE TO YOU

In this section PULP & PAPER INDUSTRY reviews recent literature of value published by the pulp and paper industry equipment and supply companies.

Write to PULP & PAPER INDUSTRY, 370 Lexington Ave., New York (17), or 71 Columbia St., Seattle (4), Wash., if you are interested in obtaining free copies of these booklets, catalogs, bulletins or folders.

BETHLEHEM STEEL CO. has issued beautifully illustrated booklet showing its steel plants, mill depots and fabricating plants on Pacific Coast and giving important data on their capacities and facilities. General office is 20th & Illinois Sts., San Francisco 19.

OLIVER UNITED FILTERS, INC.—An illustrated folder on ODS—Oliver Diaphragm Slurry—pump, designed to operate without mechanical linkage for transmitting force to diaphragm. Folder gives applications, pump capacities, description of features, instructions, etc. Office at 33 W. 42, New York 18.

ELWELL-PARKER ELECTRIC CO. has four new booklets—"Logistics of Boxes," "Logistics of Barrels," "Logistics of Bags" and "Logistics of Bales." These supplement the recently issued "Industrial Logistics: A Survey for Management." Purpose of booklets is to help manufacturers determine best methods of handling loads and contain numerous examples and photographic illustrations. Write P & P I or the company, 4205 St. Clair Ave., Cleveland 14, O.

CALCO CHEM. DIV., AMERICAN CYANAMID CO.

A copy of "Index to Calco Technical Bulletins" issued under Calco Technical Bulletin No. 761 may be obtained from your Calco representative or by writing the Advertising Department, Calco Chemical Division, American Cyanamid Co., Bound Brook, N. J.

Positions Wanted by Veterans

"And so, my fellow countrymen, I report to you that your sons and daughters have served you well and faithfully . . . They are homeward bound . . . Take care of them."—General Douglas MacArthur.

PULP & PAPER INDUSTRY offers to publish in these columns — without charge — the "classified advertisements" of bona fide ex-service men and women who have served in any of the armed services of the United States and Canada.

WANTED: Supervisory position. A returned veteran (home in Pennsylvania) with past experience of nineteen years in paper industry in executive capacity, would be very grateful for any information with reference to employment in Pacific Coast territory. Reply Box D, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

WANTED: Position in industrial engineering, purchasing, production control or planning. Discharge from army air corps imminent. Rag-weed allergy requires move from midwest; favors Pacific Coast opportunity. Experience: five years in aircraft industry, operated mercantile business, purchasing agent, production supvr. Box A.

WANTED: Position in technical direction or administration by graduate of University of Washington. B. S. degree in chemistry. Two years in Navy—Alaskan service. Spent number of years in western pulp and paper mill in laboratory and supervision. Reply Box E, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

HELP WANTED—Factory Superintendent for manufacturer of grocery sacks and specialties bags. Capable of taking complete charge. Give full experience and salary. Address Box 20, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

WANTED: Position as chem. engineer. Desires Pacific Coast connection. Grad. U. of Mich. Seven yrs. with heavy chemical manuf. in engineering, research, production; two years supvr. in manganese plant; one year cellulose products. Box B.

SERVICE MEN'S SUBSCRIPTIONS

In ordering subscriptions for service men overseas, please attach his original written request to your subscription order. Postal regulations require publishers to present original request for their examination on renewal orders as well as new subscription—before the publisher can start or renew the subscription.

CONFIDENTAL
EMPLOYMENT SERVICE
FOR PAPER AND PULP MILLS

WE INVITE CORRESPONDENCE WITH EMPLOYERS SEEKING EXECUTIVES AND EXECUTIVES SEEKING NEW POSITIONS.

CHARLES P. RAYMOND SERVICE, INC.

PAPER MILL DEPARTMENT
294 WASHINGTON STREET
BOSTON, MASS.

WANTED: Chemical Engineer with sulphite pulping and bleaching experience for Pacific Coast Mill. Reply Box 24, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

Chase those Blues away!

An automatic electric hot water heater and an electric Washing Machine will make Monday a "red letter day." No more drudgery when you get that push-button laundry. See Your Electric Appliance Dealer.

Push-Button Housekeeping averages only 22c a day on the All-Electric Rate

PUGET SOUND POWER & LIGHT COMPANY

WANTED: MASTER MECHANIC to take charge of maintenance in tissue mill. Experience in steam problems and general mill equipment preferred. Plant in Northern New York. Reply Box 22, Pulp & Paper Industry, Seattle 4, Wash.

HELP WANTED — Adjusters — Paper Bag Manufacturer. Good Pay. Give details, experience and Salary. Reply Box 25, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

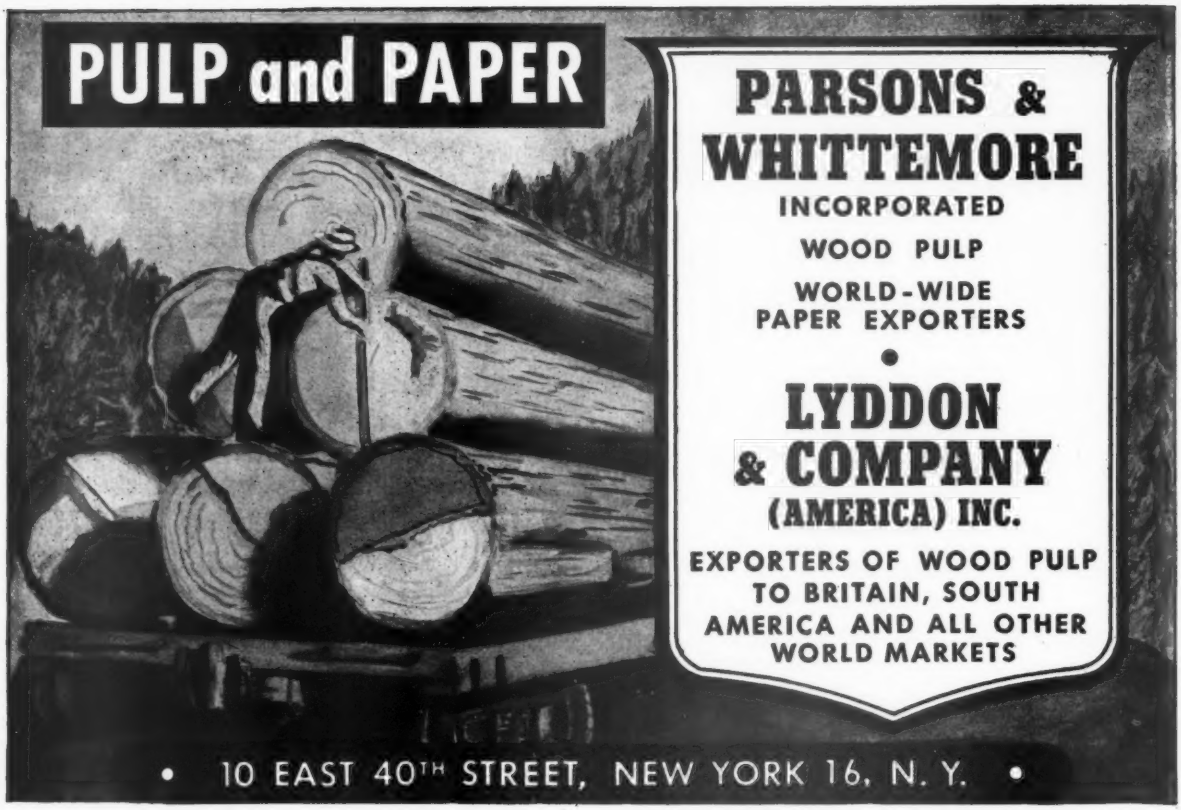
Longfibre Bowling

Longfibre Bowling League, a recreational development which includes 80 participants from Longview Fibre Co., Longview, Wash., ended the first half of a split season Dec. 18, with standings as follows:

Teams	*Won*	*Lost*	*Pct.*
Pulp Mill	36	20	.643
Machine Room	34	22	.607
Supervisors	34	22	.607
Office	29	27	.518
Bag Plant	27	29	.482
Pipe Fitters	26	30	.464
Mechanics	22	34	.393
Box Plant	15	41	.268

In individual high scores, A. Cloninger of the Office team, led with 282 pins for high single game and 675 for high single series. High averages for individuals of respective teams were:

Supervisors, C. Fahlstrom, 171; Machine Room, T. Kerns, 176; Mechanics, A. Stein, 172; Pulp Mill, W. VanDinter, 188; Bag Plant, J. Gilligan, 174; Box Plant, H. Weyenberg, 161; Pipe Fitters, E. Bogard, 178; Office, A. Cloninger, 163.



Steel Up For New $1,000,000 Board Mill

Steel work for the warehouse and beater room of the new $1,000,000 board mill for the Gibraltar Corrugated Paper Co., North Bergen, N. J., was up by the middle of January.

H. L. Joachim, vice president in charge of the project, told PULP & PAPER INDUSTRY, that despite difficulties attending construction these days, the building is on schedule and new equipment is coming along ahead of schedule, including the 140-inch Bagley & Sewall cylinder machine.

Johnson & Wierk, Inc., New York, are consulting engineers and M. Shapiro and Sons have the construction contract.

Charlotte Jones Dies

Miss Charlotte Jones, Secretary of Bellingham Local 309, International Brotherhood of Paper Makers, died recently in St. Luke's Hospital in Bellingham. Miss Jones was a veteran employee of the Pacific Coast Paper Mills in the converting department, and had been secretary of the Local for over ten years before she was taken ill a year ago.

Eddy Promotion

John H. Cowan has been promoted to the post of assistant technical director, E. B. Eddy Co. at Hull, Que.

McNair Becomes St. Regis Midwest Pulp Representative

William M. McNair has been named midwestern sales representative of the Pulp Department, St. Regis Paper Co., President Roy K. Ferguson has announced. Mr. McNair has represented the Pulp Division of Weyerhaeuser Timber Co. in the midwest since 1935, except for three years during which he served as an intelligence officer in the Army Air Forces. In early 1945 was captain and intelligence officer for first B-29 operations based in China.

Mr. McNair will cover from offices in Chicago the territory embracing states from Minnesota to West Virginia.

Ottawa Appointment For R. W. Mayhew

R. W. Mayhew, M.P., has been appointed parliamentary assistant to Canada's minister of finance, Hon. J. L. Ilsley. Mr. Mayhew, president of Sidney Roofing & Paper Co., Victoria, B. C., is now in Ottawa attending the session of the House of Commons.

Jones Succeeds Jaeger

Jules T. Jaeger, chief engineer of the Ontario Paper Co. at head office, Thorold, Ont., has retired after 22 years of service and he has been succeeded by M. H. Jones, who has been with the company 16 years.

Jack Kilawee, paper mill superintendent at Thorold, also has retired.

N.J.-Del.-Penn. Group Will Meet May 3-4

Jesse Good, Hinde & Dauch, held a meeting of his committee in Philadelphia in December and it was voted to hold the usual spring meeting of the New Jersey-Delaware-Pennsylvania group of the superintendents' association on May 3 and 4.

The place of meeting has not yet been determined upon and will be decided by the hotel situation as it shapes up for spring.

Miss Kaye Marries

Miss Sylvia Kaye, for nine years secretary to Harold L. Zellerbach, president of the Zellerbach Paper Co., San Francisco, was recently married to Harold Lerner, former Navy lieutenant and Silver Star winner of the Bay City, and has resigned her position.

Mrs. Glory Palm, for the past 13 years connected with the company, and who of recent years has been advertising manager, is now personal assistant to Mr. Zellerbach.

Logging Superintendent

Lieut.-Colonel David Vivian Currie, winner of the Victoria Cross in World War II, has been appointed superintendent of logging for Quebec North Shore Paper Co., with headquarters at Baie Comeau.

Gilbert Returns

Major John "Jack" Gilbert, late of the USA, is back with the Zellerbach Paper Co., San Francisco, again in the headquarters sales department. Maj. Gilbert entered the Army in 1940, and took part in the battle of Attu.